Report of the

STANDARDS REVIEW COMMITTEE

on the

MINISTRY OF TRANSPORTATION AND HIGHWAYS

INLAND FERRIES

November 1992

93-02735/

Canadian Cataloguing in Publication Data
British Columbia. Ministry of Transportation and Highways. Standards Review Committee.
Report of the Standards Review Committee on the Ministry of Transportation and Highways inland ferries.

ISBN 0-7718-9295-0

1. Ferries - British Columbia. I. British Columbia. Ministry of Transportation and Highways. II. Title.

HE5784.B7B74 1992 386'.6'09711 C92-092387-9

TABLE OF CONTENTS

EXECUTIVE SUMMARY

INTRODUCTION

- Appointment of Committee
- Terms of Reference
- Report Organization and Contents

RESPONSIBILITY AND PROFESSIONALISM

- Ministry Organization
- Management of Marine Component
- Managing Owner/Ship's Husband
- Ministry Marine Innovations
- Recommended Marine Component Organization

PROFESSIONAL REQUIREMENTS

- Legislation, Regulations and Orders
- Inspections and Enforcement
- Certification and Qualifications

INSPECTION METHODOLOGY

- Overview of Vessels in the Inland Ferry Fleet
- Technical Inspection of Vessels
- Emergency Drills
- Personnel Interviews

MAJOR INSPECTION ISSUES

Overview of Inspection Issues

Licenced Vessels

- Safety Practices and Equipment
- Operational Deficiencies
- Technical Deficiencies
- Training of Marine Personnel and Machinery Operators

Cable Vessels

- Safety Practices and Equipment
- Operational Deficiencies
- Technical Deficiencies
- Training of Marine Personnel and Machinery Operators

Reaction Vessels

- Safety Practices and Equipment
- Operational Deficiencies
- Technical Deficiencies
- Training of Marine Personnel and Machinery Operators

Tug and Barge Operations

- Safety Practices and Equipment
- Operational Deficiencies

Recommended Fire and Equipment Plan and Check-off Lists

MAJOR PERSONNEL RELATED ISSUES

Communications and Labour Relations

Appraisals and Career Development

Committees and Programs

RECOMMENDATIONS

Management

Inspections and Enforcement

Certification and Qualifications

Major Inspection Issues

Communications and Labour Relations

Appraisals and Career Development

Committees and Programs

APPENDICES

1. Example format for Marine Services Policy and Procedures Manual
2. Revised International Marine Organization Inspection Format
3. Recommended Fire and Equipment Plan and Check-Off Lists
4. Ferry Inspection ALBION : 4-6 August and 5-6 October, 1992
5. Ferry Inspection FRANCOIS LAKE : 18-20 August, 1992
6. Ferry Inspection UPPER ARROW LAKE : 15-16 September, 1992
7. Ferry Inspection KOOTENAY LAKE : 22-23 September, 1992
8. Ferry Inspection NEEDLES : 17 September, 1992
9. Ferry Inspection ARROW PARK : 17 September, 1992
10. Ferry Inspection HARROP : 21 September, 1992
11. Ferry Inspection GLADE : 21 September, 1992
12. Ferry Inspection MARGUERITE : 17 August, 1992
13. Ferry Inspection USK : 21 August, 1992
14. Ferry Inspection BIG BAR : 1 September, 1992
15. Ferry Inspection LITTLE FORT : 2 September, 1992
16. Ferry Inspection McLURE : 2 September, 1992
17. Ferry Inspection LYTTON : 3 September, 1992
18. Ferry Inspection BARNSTON ISLAND : 7 August, 1992
19. Ferry Inspection SICAMOUS : 14 September, 1992

EXECUTIVE SUMMARY

The Inland Ferry Standards Review was commissioned by the Minister of Transportation and Highways in August, 1992, and the Committee members appointed were given the mandate to review the ferry operations for the standards maintained in safety of operations, serviceability of safety equipment, and employee proficiency, training and professional development, and the adequacy of the Ministry's policies and procedures governing marine operations. In addition, the Minister allowed the Committee the freedom and discretion to inquire into and deal with related matters as appropriate.

This detailed inspection, which included a thorough technical and operations survey and examination, scenario driven emergency drills with passengers and vehicles embarked, and 99 personnel interviews, showed that the Inland Ferry system is basically sound and being run by dedicated personnel. Innovative safety related equipment has been added to some of the vessels, and there are vessels in the fleet that are the first in Canada to operate on natural gas.

The operational and safety review was most timely, in that there have been serious ferry incidents in British Columbia prior to and after the Committee started the inspections of the Inland Ferry Fleet. It should be noted that the Inland Ferry fleet has a good safety record, and, although there have been serious accidents, there have been no fatalities that can be ascribed to vessel operations or to the employees themselves. This is noteworthy, since the 17 vessels in this system, which operate on the rivers and lakes within this province, in 1991-92, carried 2.5 million passengers and 2.6 million vehicles (including drivers).

These observations being noted, the Committee found that the Inland Ferry fleet is not being operated to common standards, and this includes: vessel operating procedures, safety and emergency procedures, equipment and vessel upkeep, training and professional development, and labour relations. The Committee found many inconsistencies and deficiencies throughout the system, and besides those already mentioned, **the ones of most concern were those related to the inconsistent and inefficient management of the system and the inconsiderate manner that managers administer the personnel in the marine component.**

Many reasons could be given by management for the unacceptable professional standards and deficiencies in the system, but the Committee is adamant on the fact that **there is no excuse for the unacceptable standard of safety and emergency procedures within the fleet. The reason that the standards have been degraded in the fleet is because there is no professional marine management chain of command, and the one professional marine manager incumbent, who is responsible for the marine system by Ministerial decree, has effectively been removed from fleet operations.**

With decentralization, the Ministry has given operational control of the vessels to the Regions. This in itself, has caused differences in vessel operations, indifference to safety standards and the deterioration of morale amongst the marine component employees. It cannot be expected for managers without a professional marine background to recognize deteriorating vessel and safety standards or to effectively administer marine component personnel. A professionally organized marine system would not allow this type of situation to occur, **since it does affect the liability of those responsible for the safety of crew, passengers and vessels.**

In the professional opinion of the Committee members, the vessel inspection results were as follows: two met operations and safety standards; one met operations standards; ten met minimum standards; and, **three vessels were unacceptable and one was recommended for immediate withdrawal from service for repair and operator training.**

Irrespective of the minimum requirements as stipulated in the Canada Shipping Act for licenced vessels, the owner has the responsibility to ensure that the vessels are well founded in manning, safety equipment and trained personnel. Further, it was found that there are no safety or inspection standards in place for cable and reaction ferries. Apart from some basic Ministry requirements, there is no provincial legislation that specifies the need for safety equipment or inspections. An amendment to the Ferry Act of British Columbia to ensure these requirements should be taken for action immediately.

From the mandate given the Committee, and the results of the vessel inspections, it is important to bring to mind that **ferries should not be operated to minimum levels of**

affordable risk, but rather to a pre-determined level of safety, developed out of a sense of obligation to the passengers and employees.

After careful consideration of these and other issues, the Committee has reached the following **main** recommendations:

- The Marine Component be centralized under one marine professional chain of command, and be comprised of a Marine Highway Director with an appropriate staff, and a mandate "to provide safe, efficient and effective marine transportation on behalf of the residents of British Columbia and the travelling public."
- The Ministry request an amendment to the Ferry Act of British Columbia, to include the need for a yearly inspection of cable and reaction ferries, along with the appropriate safety criteria and the issuance of an Inspection Certificate.
- The Ministry assume responsibility to ensure yearly inspections of all of their vessels in all areas of operations and safety. These inspections be conducted by an outside authority and that the officers and crew members be debriefed on the inspection and that recommendations for corrective action be expedited by the appropriate responsible authority in the Ministry.
- Employees, regular and auxiliary, depending on grade level, be given refresher, command and control and management courses. A discipline be established to ensure, under normal circumstances, that certified personnel only relieve up one position, the Apprentice Program be protected, and, that senior marine officers be given the opportunity to serve in other ferry systems to ameliorate their professional knowledge and leadership skills.
- The deficiencies and inconsistencies noted in the vessel inspections be corrected expeditiously, particularly those involving safety and safety equipment issues.
- A centralized labour relations model be adopted in respect to marine component issues, including the need for the appropriate employer/employee, Director Marine Highway/Senior Captains, Senior Captain/Masters committees, and that the Ministry revise the grievance procedure in order to utilize the marine professionals in the first two steps of the procedure.

- The Appraisal system be revised to include those factors needed when assessing marine professionals, and that these assessments be used in the career development of the employees. Recruitment and selection criteria for marine positions/employees be developed and adhered to, and selection panels be standardized to ensure marine professional control.
- The Ministry's programs must be fully explained to ensure that the employees understand the benefits to be derived from participation.

In summary, management has caused the problem, and it is here that the first action must be taken to correct what the Committee finds to be an unsatisfactory situation. There have been sufficient marine accidents in British Columbia waters in 1992, to indicate to management that the safety of passengers is paramount, and that well trained professional marine personnel are required to run the system, along with a competent management to ensure the health of the marine component and its personnel.

The Committee members recommend that the Minister take immediate action to implement the recommendations in this report, for the benefit of the travelling public and to allow the marine employees to discharge their professional responsibilities in a safe and effective manner.

INTRODUCTION

APPOINTMENT OF COMMITTEE

The Honourable Art Charbonneau, British Columbia Minister of Transportation and Highways, appointed the Inland Ferry Standards Review Committee on August 5, 1992, to review the Ministry's ferry operations for safety. The terms of reference were purposely made broad to allow the Committee the freedom and discretion to inquire and deal with related matters as was deemed necessary in order to acquire the necessary information to focus on the key issues which have been identified.

The members of the Inland Ferry Standards Review Committee were as follows: Rear Admiral Robert Yanow (Chairman), Mr. John Green, Mr. Earl Lund, Mr. David Matland and Captain Ken Millar. Two Advisors, Captain Michael McHale and Mr. Peter Sandland, were seconded to the Committee to allow for a third party inspection assessment and to ensure the resolution of any item that could be construed as a conflict of interest.

Rear Admiral Robert Yanow retired from the Canadian Navy and Canadian Forces in 1987, after 36 years service. His last appointment was as Commander Maritime Forces Pacific.

Mr. John Green is the Canadian Coast Guard Regional Operations Superintendent, Ship Safety Branch Western Region. He has had extensive sea-going experience as an engineer officer in the Merchant Service, and has over 25 years experience in Ship safety operations and management as an officer in the Canadian Coast Guard.

Mr. Earl Lund, P.Eng, is the Chief Highway Engineer for the Ministry of Transportation and Highways. He has had 33 years experience in all areas of highway construction and maintenance. He is the senior executive within the Ministry with extensive experience in Highway Ferry marine matters.

Mr. David Matland is the Staff Representative for the British Columbia Government Employees' Union and has served the Union for 20 years. He served as an officer in the Royal Naval Volunteer Reserve, has had extensive experience in management in Europe and Canada, and is a recognized expert in labour relations.

Captain Ken Millar is presently the District Marine Manager in the Francois Lake Inland Ferry operation. He started in the marine industry in 1944, and has extensive experience in commanding various vessels within the Inland Ferry system.

Captain Michael McHale is registered with The Company of Master Mariners of Canada and has served as an officer in the Royal Navy and Canadian Navy, and for the last 23 years has been an officer with the British Columbia Ferry Corporation.

Mr. Peter Sandland, P.Eng, is the General Manager of Western Pacific Marine Ltd., and is a marine surveyor consultant. He has had 28 years experience in marine engineering, starting his career as a Marine Engineer in the British Merchant Navy, an Engineer Surveyor with Lloyd's Register of Shipping in the investigation department, and 14 years in the Canadian marine industry.

TERMS OF REFERENCE

The Minister of Transportation and Highways encouraged the Committee to consider the International Maritime Organization guidelines for vessel operations, specifically for those vessels inspected under the Canada Shipping Act. The Terms of Reference covered the Licenced, Cable, Reaction and Aerial Ferries; the reference to salient Acts, Regulations and Policies; areas for information gathering; and, the subjects and items to be reviewed, as follows:

- Vessel safety, including passenger and crew safety;
- Policies and procedures governing marine operations and related directives to employees;
- Standards of proficiency, training and professional development of personnel responsible for vessel operations; and,
- Evaluation of aids to navigation and safety systems employed in vessels.

REPORT ORGANIZATION AND CONTENTS

This report includes an Executive Summary, along with the pertinent recommendations resulting from the Committee's review of the Inland Ferry organization; management; safety, operational and technical standards; certification, qualification and personnel training; personnel development and well-being.

The first section of the report deals with the Ministry organization, management of the marine component, and the command and control of this component. Included in this section of the report is an overview of the safety and technical innovations that have been developed and instituted by the Ministry's Marine Manager and the marine component employees.

The second section of the report is a review of the Legislation, Regulations and Orders that pertain to the various classes of vessels within the Inland Ferry fleet, along with the types of inspections that the vessels are subjected to and the means to enforce corrective action. Certification and qualifications for the employees in the fleet are also addressed in this section.

The third section of the report is a description of the inspection methodology. Inspections of the vessels followed a three-fold procedure, in that a detailed inspection was conducted taking into account all of the vessel's compartments, equipment, documentation, certification and procedures; crews were subjected to scenario driven "on-scene" emergency drills; and, interviews were held with at least one person at each grade level, and all others that wanted to be interviewed.

The fourth section of the report deals specifically with the Committee's findings during the inspection of the vessels and their parent unit(s). The findings are related to safety, operational and technical issues which affect the safe and efficient operation of the subject vessels.

The fifth section of the report concerns personnel related issues, such as the communications up and down the chain of command, personnel development, labour relations and the well-being of the personnel themselves.

The last section of the report presents the Committee's recommendations. These fall into three categories: management, standards and personnel issues.

RESPONSIBILITY AND PROFESSIONALISM

MINISTRY ORGANIZATION

An examination of the Ministry's organization chart shows that the entity is developed on what could be called "classical lines." There is an operational line organization, with command and control of this line organization from the Deputy Minister, through the Assistant Deputy Minister Highways Operations, to six Regional Directors. In turn the Regional Directors have a Regional Manager Operations who oversees the District Highway Managers, and these manage Area Managers and, in some Districts, this would include the Senior Captain (District Marine Manager).

Management of the Regions is vested in "Annual Performance Agreements" where the Regional Director, along with the senior managers, "commit to the delivery of the highest quality services and products in a cost effective manner as specified in the performance agreement." These Agreements are signed by the Assistant Deputy Minister Highways Operations on behalf of the Ministry. The Agreements are project orientated, and have been developed to allow Regions greater freedom of decision and less centralized control; increased authority and accountability at the local levels; the direction of more resources toward the improvement of quality and greater quantity of the final product or service; to focus all effort toward the delivery of the end product or service; and, to be measured on the results only.

The Agreements contain a Business Plan which, are to a degree, orientated to a specific Region. The Business Plan details the Priorities for Action which includes service excellence; Human Resources which takes into account training and development, employment equity, and wellness; Communications; Administrative Reform Goal; Transportation Planning; and Management of Analytical and Information Systems. The follow-on sections deal with Enhanced Performance Delivery; Requirements of Special Interest; Optimize Program Delivery; Program Operational Objectives; and Reporting Requirements. The Agreements, along with their attendant Business Plans, are well documented and indicate the Ministry's desire to utilize its reduced resources to best advantage.

Interrelating with this operations line organization is a Headquarters Staff, the most important of which, from an operational requirement, is the Chief Highway Engineer and his staff with expertise in highway, bridge, geotechnical and materials, and construction engineering; properties; maintenance; safety; and highway environment. It is within this Headquarters Division, through the Director of Bridge Engineering, that the Marine Manager is ensconced.

From the foregoing, it can be seen that the operations line organization is well founded with its structure, Agreements and Business Plans. There is an Agreement for the Chief Highway Engineer in providing services to the Regions, but what is lacking are Terms of Reference for the Headquarters Staff to functionally interrelate with the Regions with properly documented, mutually responsive terms. There have been efforts to rectify the situation but the lack of appropriate terms of reference has been a dilemma for the Marine Manager.

The inconsistency in the management line of communications was noted as a recommendation for serious consideration by the "Employer" in a recent Arbitration between the Government of the Province of British Columbia, Ministry of Transportation and Highways and the British Columbia Government Employees' Union. The Arbitration Board noted that the **"complex reporting procedure causes considerable confusion for the employees in the marine environment,"** and recommended that serious consideration be given to **amending the management line of communications in order to allow direct control of the marine operations by the recognized professional in this field, the Marine Manager.**

MANAGEMENT OF MARINE COMPONENT

First, it should be recorded that the Ministry has been subjected to a large scale reorganization with the advent of "Privatization" and "Decentralization," which resulted in a reduction of personnel from some 7000 to around 2700 personnel. As already discussed, the Ministry executives have been diligent in ameliorating this reduction and at the same time trying to ensure an effective and cost efficient transportation and highways organization and system.

To clarify the matter of the Ministry's management of its Marine Services, it is important to first examine the history of the component. In the early 1970's, the Ministry embarked on a major upgrade to both the saltwater and freshwater ferry services. Prior to that time, the vessels were either subsidized or operated by the Ministry Districts. At that time, a Superintendent of Ferries gave advice to the Districts on engineering and operational problems, but, in essence, Ministry policy on certification and operations was minimal.

When the fleet upgrade began, the ferry system was placed under the control of the Equipment Services Branch, and the Superintendent of Ferries, a Marine Engineer, First Class, had a staff composed of a Marine Superintendent who was a Master Mariner, a clerk and a typist. The responsibility for the ferry system operations was shared by Headquarters and the Districts. Headquarters arranged, managed and funded all repairs, refits and additions to vessels and docks. Training was approved by the Marine Superintendent. Budgeting was done by Headquarters with District submissions, and only fuel and payrolls were handled by the Districts. All personnel matters were handled by the Districts and Regions on the advice and approval of the Superintendent of Ferries. Union matters, contract interpretations and grievances were handled by the Marine Superintendent who liaised with Headquarters personnel and the Public Service Commission.

Generally, the ferry system as described worked well and provided good economical service, but it was not without some areas of contention, namely:

- Disruptions to ferry service were not always adequately conveyed to the District Highways Manager, and when they were, there was sometimes inadequate notice given to the public.
- District Managers would, on occasion, adjust schedules and use the ferry for alternate work without notice to the Superintendent of Ferries. The public complaint then had to be addressed by the Superintendent of Ferries.
- There was, in some cases, strained relations between the Ferry and the District personnel, and, in some cases, the relationship between these entities became such that it affected the proper flow of information to the Superintendent of Ferries.

- The major problem was personnel matters. The Ministry organization was such that all District personnel, which included marine personnel because these personnel drew their pay from the District officers, were under the supervision of Regional Personnel Officers. The variance in cooperation by Regional Personnel Officers with the Marine Superintendent resulted in inconsistent personnel policy applications and interpretations. The British Columbia Government Employee's Union looked to Headquarters for consistency, but in some cases it could not be delivered.
- The Superintendent of Ferries considered marine services and the employees as a unique group in the Ministry, and this was in conflict with the views of the Regions and Districts where the marine employees were considered to be local workers. Some non-approved procedures for training applications, job postings, short list criteria, interview and grievance procedures were developed to preclude Headquarters involvement and the application of a fleet-wide standard in these matters.

In 1984, the saltwater portion of the fleet and two-thirds of the Marine staff were transferred to the British Columbia Ferry Corporation. The Director of Equipment Services was directed to reduce the Marine Section staff to match the fleet reduction. One clerk was transferred to the British Columbia Ferry Corporation and the Superintendent of Ferries' position was renamed the Marine Manager and filled by the present incumbent. The Marine Superintendent's position was deleted, and, as a result, vessel operations and personnel matters were transferred to the Route Senior Captains (District Marine Managers).

In 1987, a study was undertaken of payroll payments by District offices and it was confirmed that there was inconsistent payroll practices and many overpayment errors were noted. The payroll was centralized in Headquarters and considerable savings have been realized by consistent application of complex requirements by a small staff.

In 1988, ferry operations were transferred to Headquarters, under the direction of the Chief Highway Engineer, in order to bring about certain economies and to standardize service to the public as well as the uniform application of Ministry policies and procedures. It was intended, as is now implemented, that the ferry operations would be returned to District control when the economies, standards, and policies and procedures had been realized.

During this period, the Marine Manager had command and control of the ferry system. Route Senior Captains reported directly to the Marine Manager who in turn reported to the Executive Director Operations. Besides significant savings being realized in proper payroll practices, savings in the use of alternate fuel in some operations, the refunding of taxes paid on fuel, innovations in vessel operations and emergency equipment, there was, as reported by BCGEU representatives, a uniform approach to handling grievances and a better control and understanding of the work force resulting in a significant change to the collective agreement, such as in the area of substitution. The marine system worked well under this centralized organization, and the employees appeared to be satisfied in that the chain of command was comprised of executives with a marine background. This latter item is important, as it gave marine employees the feeling that their concerns would be understood at the higher levels of management.

In 1990, the present decentralized Marine Operation was instituted despite the best advice of knowledgeable executives within the Ministry. With the chain of command that is now in force, it is obvious that there are more persons involved in providing the same services at higher costs for both overtime and routine operations.

The Committee has reviewed the documentation as far back as November, 1989, wherein discussions have been held on the job related requirements for the Marine Manager. The Marine Operating Policy, dated November, 1989, has the Marine Manager "responsible for setting minimum fleet-wide standards for vessel operations, modifications, refit and repair ... sole contact with the Canadian Coast Guard for aspects of licencing, competency of licenced personnel, and reporting on marine incidents." This Operating Policy was accompanied by a complex matrix detailing the function of the District/Region/Headquarters in all aspects of the functions appertaining to marine matters. Recent correspondence from some of the Regions indicates the further curtailing of the Marine Manager's responsibilities, and an even more elaborate action/reporting matrix. **It appears that the detailing of the Marine Manager's responsibilities is being done on a consensus basis, without reference to any marine specialist, and the Committee members have found this to be most unsatisfactory, especially when the safety of crew, passengers and vessels is of paramount importance.**

The manner in which the Inland Ferry system is being governed by the Ministry is difficult to comprehend when compared to the British Columbia Ferry Corporation. Within the Corporation, officers and other personnel can relate within their marine discipline up to the Assistant General Manager Operations or Engineering. This Assistant General Manager's position is akin to the Marine Manager within the Ministry, albeit on a smaller scale. However, at the present time, the Marine Manager's responsibilities and authority have been reduced considerably,and operational responsibility has been given to the District Highway Manager.

Since "Decentralization" the Route Senior Captain, commanding the ferry unit within a specific area, has reported to the District Highway Manager for operations, financial and administrative support, and the Marine Manager has, in effect, been removed from this chain of command. It was most obvious during the inspections of these units that the Route Senior Captains do not effectively command their units, and that, unlike the system in the British Columbia Ferry Corporation, they do not have a marine professional up the line to ensure compliance with marine standards.

The Route Senior Captain is responsible for the day-to-day operations of the vessels under his command. In turn he reports on operational matters to the District Highway Manager. Irrespective of the good intentions of a particular District Highway Manager, it is very difficult for that manager to understand the requirements for operating a vessel in a safe and efficient manner. In addition, the Route Senior Captains, some confused by the changing reporting procedures, others taking advantage of the confusion, were not proficient at their jobs. This is borne out by the degradation in the safety, operations, deck, engineering and personnel relations observed by the Committee during the inspections.

Up until recently, the Route Senior Captain's job was to be the on-scene commander, where he was close to his vessels, cooperated with his senior officers, ensured the well-being of his personnel, ensured the compliance with the various legislations, rules, regulations, policies and procedures, ensured that the vessels were maintained properly, were clean, and that excellent service was provided to the public by well motivated and trained personnel. **Most important of all, the Senior Captains maintained their marine skills by keeping a**

watch, which meant that the employees could relate to the competence and professional example set by their immediate superior. As observed by the Committee, this is no longer the case since Route Senior Captains are now District Marine Managers, they no longer wear their uniform and they spend an inordinate amount of time in District offices miles away from their charges. The poor standard of emergency drills and procedures, the defects noted in the operations, deck and engineering departments aboard the vessels, and the poor morale of the crews attests to the inattention of the immediate marine superiors.

Inattention to this duty by the Senior Captains conflicts with the major responsibilities as stated in their Position Description which states, in part: "... responsible for the safe, efficient and effective operation and maintenance of an inland passenger and vehicular ferry including the management of all financial and human resources allocated to the system ... and encouragement of effective teamwork and good morale within and across shifts."

To summarize this section, it can be seen that the Ministry's marine component has been subjected to a considerable number of changes in fleet composition, staff changes, and command relationships. It is obvious that the marine discipline has been eroded, and this is evidenced by the consensus approach being taken to detailing and curtailing of the Marine Manager's responsibilities, without reference to any marine specialist. The confusion that has been caused by these changes in the marine component has had disturbing effects on the employees and, more important, on the marine discipline that should come from a proper chain of command. **The Committee has found this situation to be most unsatisfactory, since the effects of this type of confusion and mismanagement compromise the safety of crew, passengers and vessels.**

MANAGING OWNER/SHIP'S HUSBAND

The Licenced vessels are owned and registered to Her Majesty the Queen in the Right of the Honourable Minister of Transportation and Highways, and the Managing Owner/Ship's Husband is the Marine Manager. There is a Transport Canada Appointment of Managing Owner/Ship's Husband Certificate for each Licenced vessel, which makes the Marine Manager

the Managing Owner/Ship's Husband and the certificate is signed by the Deputy Minister, Ministry of Transportation and Highways.

The vessels concerned are the MV KLATAWA, KULLEET, OMINECA PRINCESS, ANSCOMB, BALFOUR, SHELTER BAY, and DEV GALENA. They are manned and operated under the Canada Shipping Act, and regulations pertaining to this Act, and are inspected under these regulations by the Canadian Coast Guard, Ship Safety Branch as Passenger Vessels.

The Canada Shipping Act requires that a Managing Owner be appointed for every ship registered at a Canadian Port. Section 76 (2) of the Act provides as follows: "Where there is no Managing Owner of a ship, there shall be registered under subsection (1) the name of the ship's husband or other person to whom the management of the ship is entrusted by or on behalf of the owner, and any person whose name is so registered is, for the purposes of this Act, under the same obligation and subject to the same liabilities as if he were the managing owner."

The words to be noted here are "... to whom the management of the ship is entrusted," and in this instance, the management of the vessels is entrusted to the Marine Manager. If these vessels are entrusted to the management of the Marine Manager, then that person should be allowed to govern the vessels in all of the functions, including operations, safety and technical standards, engineering, refits, repairs, labour relations and the well-being of the personnel involved. **This is not the case in the present situation, as already described in the previous section of this report.**

In the opinion of a specialist in Maritime Law, Mr. Peter G. Bernard of Campney and Murphy, Barristers and Solicitors:

> "... cases which consider the role of "ship's husband" and "managing owner" indicate that the person appointed to that position is the person to whom an owner will generally delegate responsibility for safety and maintenance of the vessel, it is not essential that the person so delegated perform that function. **However, unless the owner establishes a system to supervise and report on safety, navigation and maintenance, the owner will not be permitted to limit its liability in the event of a marine accident.**
>
> Limitation is a potential remedy made available to a shipowner by the provisions of Section 575 of the Canada Shipping Act, who has not been guilty of any actual fault of

privity in connection with an accidental occurrence involving the vessel to limit his liability to an amount to be determined by that formula set out. In the case of your vessels which are probably about 500 tons or less, the minimum would apply and the limitation amount would be set at approximately $53,000. [The Committee notes that the Ministry carries insurance for Marine Protection and Indemnity (a type of liability) coverage, which includes a 4/4th Running Down Clause that allows coverage for collision with their own docks. The coverage limits are $500 million each vessel/each accident/each occurrence.]

The leading case and the high water test of whether an owner has established adequate systems and exercised sufficient control to entitle it to limit is the House of Lords decision in the MARION. In the MARION, the Master anchored on and damaged a submarine pipeline because he was not using up-to-date charts. The owners were able to show that the correct charts were actually on board the MARION and that they had a perfectly adequate system of ensuring that updates reached their ships. However, the House of Lords decided that this was not enough. The owners also had to show that they had a system for ensuring that the correct charts were actually used. This meant a rigorous system of on-board investigations by marine superintendents and detailed studies of the log books. **The House of Lords traced responsibility for safe navigation all the way to the level of directors of the company. To avoid fault the company should have had a chain of command which ensured reports would reach the responsible director.**

Although there was a time when Courts dealing with limitation actions considered that shipowners sufficiently discharged their responsibilities if they appoint a competent Master and then left all questions of safe navigation to him, that approach is no longer acceptable.

Given current state of the law on limitations we are of the opinion, based on our review of the organization chart you provided and the reporting hierarchy described under the heading "Facts", **that the current flow of reporting on marine operations within the Ministry would make it extremely difficult for the Ministry to limit its liability in the event of a marine accident."**

The Province, on behalf of the Ministry, carries a high level of deductible insurance for the marine component, but this in itself does not obviate the Ministry from ensuring that the marine component comes under the direct control and supervision of the person appointed as the Managing Owner/Ship's Husband. The Ministry has allocated the marine assets to the Districts, and the Marine Manager is in the unenviable position of being the responsible officer for vessel operations and day-to-day safety without having direct command and control of the

vessels. The House of Lords decision in the MARION is important in that it spells out the need for a chain of command, and this means a marine chain of command. It is not unlike the system in the British Columbia Ferry Corporation, where an officer and other personnel can relate within their marine discipline up to the Assistant General Manager Operations or Engineering.

It is appreciated that the Ministry's main objective is to "decentralize" the system, as evidenced from the comments made in the first section of this report. Further, it is also appreciated that the Regions look upon "Transportation and Highway" as a continuum of all facets comprising the transportation system. Nevertheless, there are special components that need direct supervision of a professional in that field, and the marine component is one of these special entities. Decentralization of the system can still be served by bringing the marine system together as a group under the management of the Marine Manager. This marine group could then serve the Regions/Districts under the same type of Agreement that the Assistant Deputy Minister Highway Operations has with the Regions.

MINISTRY MARINE INNOVATIONS

It is to the credit of the Marine Manager that a good number of safety innovations have been introduced into the Inland Ferry fleet. These improvements, modifications and innovations should be recognized:

- All life boats under antiquated davit systems have been replaced with inflatable rescue boats under single arm davits. This has been done in all seven licenced vessels and the NEEDLES.
- Replaced multiple life rafts, six x 25 persons with dual two x 75 persons inflatable rescue platforms in the seven licenced vessels and the NEEDLES.
- Installed a Canadian Coast Guard approved innovative evacuation system to allow easy access from the boat deck to the lifesaving platforms in MV ANSCOMB. This is the first such system in Canada.
- Installed 75 person lifesaving platforms aboard the cable ferries, HARROP, GLADE, ARROW PARK, and NEEDLES.

- Installed aluminum river/rescue boats aboard reaction ferries, BIG BAR, USK, LITTLE FORT.
- Installed fixed fire extinguishing systems for engine spaces, although not required by regulations, in all of the cable ferries.
- Restructured and modified wheelhouse of vessels to afford improved visibility and to improve working conditions of vessel operators in KLATAWA, KULLEET, OMINECA PRINCESS, HARROP, GLADE and ARROW PARK.
- Modified engine arrangements to reduce noise level and to improve working conditions of vessel operators in ARROW PARK, GLADE and HARROP.
- Gained approval from the Canadian Coast Guard, Ship Safety Branch for wheelhouse operator launching of lifesaving platform.
- Installed non-kinking first response fire hose reels as a pilot project in OMINECA PRINCESS
- Installed bilge alarm system in all cable ferries.

The following non-safety initiatives have been taken:

- The conversion of the MV KLATAWA, in 1985, and the MV KULLEET, in 1988, to operate using natural gas and is cost effective. The first passenger vessels in Canada, and possibly in the world, to receive a passenger certificate for such an operation.
- The Canadian Coast Guard, Ship Safety Branch has approved in principle the conversion of the OMINECA PRINCESS to operate using natural gas.
- The NEEDLES cable ferry is a very modern vessel, and it operates on the longest cable in North America. The operational and lifesaving innovations in this vessel are outstanding.
- Installed heat recovery systems to make use of main engine heat to reduce vessels heating costs and to add heating to car deck void spaces to combat deterioration of paint systems and to facilitate snow and ice removal from car decks.
- In 1989-90, received $136,000 in excess fuel taxes paid in error by the Districts, and in 1992, will recover $30,000 annually from Excise Taxes on fuel.

- In 1985-91, ensured that all vessels were in the proper passenger load and tonnage classifications to gain maximum advantage of tax concessions. All vessels carrying more than 12 passengers were exempt Federal Sales Tax. All vessels over 500 tons were exempt Provincial Sales Tax and all insulation heat recovery and lifesaving equipment is exempt Provincial Sales Tax.

These innovations and initiatives were done in addition to the normal work for the Marine Manager. In the last five years, the Marine Manager has been instrumental in placing cable ferries that have added considerably to the efficiency of the system, modifying other vessels, and in general conducting his business to the benefit of the Ministry and the marine component.

RECOMMENDED MARINE COMPONENT ORGANIZATION

The Inland Ferry system has 17 vessels, of which seven are licenced, six are reaction and four are cable. In addition, this system has four aerial ferries which are linked with four reaction ferries, two registered tugs, one barge, two dry docks, and one marine railway. In 1991/92, these vessels made 532,164 trips, carrying 2,461,822 passengers and 2,614,851 vehicles, the system has about 200 employees, and in this fiscal year operated on a budget of $12,820,302.

The Inland Ferry system carries a considerable number of passengers and vehicles, and this in itself requires the Ministry to give this system special attention. There have been sufficient marine accidents in British Columbia waters in 1992 to indicate to management that safety of passengers is paramount, and that competent marine personnel are required to run the system, along with a competent marine management to ensure that rules, regulations and orders are followed.

Decentralization of the Ministry's transportation and highways, along with the Agreements between the Ministry and the Regions has already been discussed. Although this decentralization may seem to be effective for those involved in highways and bridges, the Committee considers that it has not been effective for the marine component.

The decentralization of the marine component meant that the Regions assumed operational responsibility for those vessels within their geographic area. As previously mentioned, detailed concerns were expressed by knowledgeable executives within the Ministry with respect to the decentralization of the Inland Ferry system. However, these concerns were not heeded.

What has become very evident to the Committee is, simply put, that no matter how well motivated they may be, Regional and District staffs are not equipped to deal with, or relate to, a marine operation. This reality has become the source of constant friction between the marine component and the Operational line personnel.

It is the view of this Committee that all staff, Regional, District and Marine Component, were required to work under conditions that very clearly were not conducive to an efficient and effective marine operation. **The result has been that the quality of the marine operations has suffered, notably in efficiency, safety and morale.**

The Committee **recommends** that the Ministry remain with its decentralized system, but that the marine component be treated the same as the Regions in that there should be an Agreement between the Marine Component and the Ministry to provide ferry services to the Regions. In essence, this would centralize the marine component under one marine professional chain of command. The Inland Ferry system should be designated as the **Marine Highway**, with the mandate: **to provide safe, efficient and effective marine transportation on behalf of the residents of British Columbia and the travelling public.**

The **Marine Highway** group should be comprised of the managers, Senior Captains, officers and personnel of the current fleet.

The **Marine Highway** group would offer the following services to the Regions:

- Ensure the safe, efficient and effective operation of all existing vessels.
- Ensure the maintenance of all existing vessel facilities, docks and terminals.
- Ensure compliance with the Canada Shipping Act and all Federal and Provincial legislation.
- Provide personnel staff, with marine backgrounds, to address training and labour relations issues.
- Ensure adequate marine staff training, education and career development.

- Negotiate the BCGEU Marine Addendum in cooperation with the bargaining agent.
- Supervise Road and Bridge Maintenance contracts affecting dock and terminal repairs and maintenance where they apply to marine operations.
- Rationalize and obtain funding for rehabilitation and capital marine construction projects and subsequent project supervision.
- Maintain a Marine Operations Management System to supply daily/weekly/monthly/annual statistics as required by the Ministry.
- Form a Marine Transportation Committee in each Region to respond to Region and Districts concerns with respect to marine planning, operations and enquiries.

Further, it is recommended that the District Marine Managers be renamed Senior Captains, who must, as part of their duties, perform some regular Master duties.

With respect to the organizational structure of the **Marine Highway** group, the Committee makes the following recommendations:

- The Marine Manager should become a Headquarters Director, and have an Assistant Director. These two should complement each other in discipline, that is one Marine Engineer, First Class, and one Master Mariner.
- The staff for this directorate should be, at a minimum, one Office Manager (Finance and Administration) reporting to the Director, and one secretary; a Personnel/Training Officer, and a Data Analyst reporting to the Assistant Director.
- The Senior Captains in their area of operations should have a dedicated support staff, and at a minimum, at least a dedicated experienced clerk.

What has been recommended in this section is not without precedent. Other organizations have established an independent marine authority within more diverse and complex groups, such as: Marine Atlantic which was formed as the marine passenger and freight arm of the Canadian National Railways; the British Columbia Coast Steamship Company which was formed as the marine passenger and freight arm of the Canadian Pacific Railways; and, the British Columbia Ferry Corporation which was formed to separate the coastal marine transportation of passengers and freight from the Ministry of Transportation and Highways.

PROFESSIONAL REQUIREMENTS

LEGISLATION, REGULATIONS AND ORDERS

The pertinent legislation for the Inland Ferry system is contained in Federal and Provincial Acts and the attendant Rules, Regulations and Orders to these Acts. The primary legislation affecting the operations of the licenced ferries is the Canada Shipping Act, and the Regulations that flow from this Act. The Committee paid particular attention to the Parts within this Act dealing with Certificates of Officers and Safety. The Regulations that impinged on the manner in which the Committee conducted emergency drills were the "Regulations Respecting Boat and Fire Drills" and the "Regulations Respecting the Manning of Steamships."

There are other Acts which were of interest, but provided little in the way of requirements, and these are the Ferry Act of British Columbia and the Navigable Waters Protection Act. The Ferry Act of British Columbia will be discussed under the section dealing with "Inspections and Enforcement."

The Reaction and Cable ferries are not subject to any Provincial legislation which requires positive operational control. At the moment, these vessels do not need to be registered or inspected, other than what is prescribed in the Ministry's own "Marine Services Policy and Procedures Manual." However, this Marine Services Manual has just recently been distributed, and a draft copy was examined by the Committee. In this situation, it is incumbent on the Ministry to ensure, as a prudent owner, that all the passenger vessels they own and operate are as well managed and inspected as vessels registered under the requirements of the Canada Shipping Act.

The Railway Act of British Columbia and in particular the Regulation to this Act "Location, Construction, Operation and Use of Aerial Tramways" is applicable to the Big Bar, Marguerite, Usk and Little Fort operations. The Regulatory Authority for these tramways is vested in the Engineering and Inspection Branch of the Ministry of Municipal Affairs, Recreation and Culture. These inspections of the tramways are done on behalf of the Ministry of Transportation and Highways, and, because the tramways are a significant component of the reaction ferry system, they fall within the jurisdiction of the Marine Manager. There is an

"Aerial Ferry Service Manual" and there are some references to Aerial Ferries in the "Marine Services Policy and Procedures Manual."

INSPECTIONS AND ENFORCEMENT

The licenced vessels are subject to periodic inspections as detailed in the Canada Shipping Act, and the regulations pertaining to this Act. These inspections are conducted by the Canadian Coast Guard, Ship Safety Branch to the minimum standards prescribed in the Act. Section 317 of the Act prescribes the action taken by the Steamship Inspector when satisfied with the inspection, and this includes: the state of the hull and machinery; that the hull and machinery are in accordance with the regulations; the equipment that is required under the regulations is on board and in good condition; that the officers are properly certified and that the crew is sufficient and efficient; the class of voyage on which the steamship is fit to ply, and the time, if less than one year, for which the hull, equipment and machinery will be sufficient; if the steamship is a passenger steamship, the number of passengers that it may carry; and, the steam pressure that may be carried on the boilers.

Two regulations are important in this discussion, namely: the "Boat and Fire Drill" and the "Safe Manning." The "Boat and Fire Drill" Regulations delineate boat and fire drill practice, boat drills, fire drills, examination of equipment, watertight doors, muster list and emergency procedures, muster of passengers and crew and entries in Log Books. The "Safe Manning" Regulation requires that "the complement of every passenger ship carrying more than 12 passengers shall be sufficient to perform simultaneously the following duties:

> prepare the lifesaving appliances for launching,
>
> make use of the fire extinguishing equipment to fight a fire at any one location in the ship,
>
> direct and control the passengers in conditions of an emergency, and
>
> provide communication between the person in immediate charge of the ship and the persons controlling the passengers."

The Committee's inspection of the licenced vessels revealed that there were instances where the Inspection Certificates contained minor errors, and the emergency drills showed that

the crews could not conduct simultaneous duties as prescribed in the "Safe Manning" Regulations. The deficiencies noted during the inspections in the emergency drills and procedures are either because the vessels are not operated efficiently or that they require better training and more detailed inspections. The Committee considers that all three elements, manning, training and more detailed inspections, need the attention of the Ministry and the Canadian Coast Guard.

A comment that should be made with respect to the Canada Shipping Act Regulations results from the inspection of the Ministry's most recent addition to the fleet, the NEEDLES cable ferry, in that if this unit were to be placed under Canadian Coast Guard inspection, it would be patently clear that the Regulations are out of date. This vessel carries life saving and fire fighting equipment in excess of the requirements as stipulated in the present Regulations. The Managing Owner/Ship's Husband deserves credit for raising the Ministry's standards to a modern level of acceptability in emergency rescue equipment. The NEEDLES represents a definite progression in the business of moving people and vehicles, rather than perpetuating outmoded means of transport.

The cable and reaction vessels are not subject to the Canada Shipping Act, and the Canadian Coast Guard does not have the authority to inspect these vessels unless invited to do so by the provincial government. This leaves the Ferry Act of British Columbia, and a review of this legislation shows that there is no provision for inspecting these vessels, and as a result no regulations pertaining to safety, vessel equipment, emergency rescue equipment, emergency procedures, certification of operators, training of operators, or required inspection standards.

The Committee considers this to be a serious shortcoming in the provincial legislation with respect to ferries. It is recommended that an amendment be made to the Ferry Act of British Columbia to include the need for a yearly inspection of cable and reaction ferries, along with the appropriate criteria and the issuance of an Inspection Certificate. Further, it is recommended that this inspection be delegated to an outside authority, since an inspection done by Ministry employees would be seen as a conflict of interest.

The Ministry's "Marine Services Policy and Procedures Manual" does cover some of the important items with respect to emergency rescue equipment, but falls short in detailing

emergency procedures, certification of operators, training of operators and required inspection standards.

The Committee has reviewed the "Marine Services Policy and Procedures Manual" and considers that the Manual is not a truly user friendly document. Policies and procedures are not clearly separated, and it is recommended that the Manual be rewritten into separate sections as follows:

SECTION 1 - POLICIES: This section should contain all of the guidelines that are set down by the Ministry for the general operation and management of the ferry system on a Province wide basis and should ensure that there is a consistent level of service throughout the system. The subsections should include a Mission Statement, Statutory Requirements, General Requirements and Operational Policy.

SECTION 2 - PROCEDURES: This section should be written as STANDING ORDERS and be very specific as to what action is to be taken in a specific circumstance or exactly what the rules are for the on-board crew. The individual vessels may need to have this Procedures Manual tailored to fit their needs. The headings that should go into this section are as follows: Publications, General Operations, and Incidents and Reporting.

SECTION 3 - EMERGENCY "Q" CARDS: A set of cards on some form of ROLADEX should be made for quick reference by the officer in charge so that in an emergency the person would be able to reference quickly a system that will ensure that all appropriate actions have been taken and that nothing is forgotten. These cards should be easily read and easy to understand. There should be a limited number so as not to confuse and they should be for real emergency procedures only. A second abbreviated set may be required for the engine room staff.

SECTION 4 - PLANNED MAINTENANCE SCHEDULES AND PROCEDURES: This should be vessel specific and detail all Operations and Machinery procedures to maintain the vessel in an ongoing state of good repair.

An example of the format for "Marine Services Policy and Procedures Manual" is given as an Appendix to this report.

The Railway Act of British Columbia and the Regulation "Location, Construction, Operation and Use of Aerial Tramways" has already been referred to in the last section. However, it is important to note that this Regulation and the "Aerial Ferry Service Manual" has been given to the operators in the areas that have tramways. Unfortunately, during the inspection, the operators either could not produce this documentation or produced only pieces of the publication that was given to them by the Inspecting Engineer, Aerial Tramways. The Committee recommends that this situation should be corrected, and that operators be required to maintain the Manual in good order, and inspections of tramways should ensure operator compliance.

The Committee found that the Districts took it upon themselves to make modifications to the tramways without informing the Regulatory Authority or the Marine Manager. In this instance the modification was major, in that the motor was relocated under a wooden floor board. It took the Inspecting Engineer to ensure the safety of this modification by having the wooden floor replaced by steel, along with a smothering system for the engine space. This modification caused a re-evaluation of the carrying capacity of the tramway cab. This type of modification should not have occurred without proper authorization. At the present time, there are two modified tramway cabs and two in the original state. The Committee recommends that strict control be imposed on modifications to tramways, and for that matter to any vehicle or vessel, and that modifications be done only on the approval of the Marine Manager.

One comment made by Masters and crew members to the Committee requires **immediate attention**, and this was to do with inspections, in that they have not ever had such a rigorous vessel inspection or such demanding scenario driven emergency drills. This in itself is most telling, and the **Committee recommends that the Ministry assume the responsibility to ensure yearly inspections of all of their vessels, including operations, deck, technical and emergency procedures. Further, the Committee recommends that these inspections be conducted by an outside authority, that the officers and crew members be debriefed on the inspection, and that recommendations for corrective action be expedited by the appropriate responsible authority in Headquarters.**

CERTIFICATION AND QUALIFICATIONS

The Committee found during the emergency drill scenarios conducted in the vessels of the Inland Ferry fleet that many personnel failed to carry out their duties in a professional manner. Although the majority of personnel have had the appropriate courses, as given at marine training centres like the Pacific Marine Training Institute, it was apparent that they needed a refresher course in Marine Emergency Duties (MED).

At the present time, the Ministry does not require deckhands gaining regular employee status to take MED courses, although desirable, it is not mandatory. The Committee found some regular status deckhands that did not have the basic MED qualifications and some have refused to take the courses. The Committee finds this situation unacceptable.

The Committee considers that the Ministry should ensure that on hiring a person for the position of deckhand, it is explained to the person that MED certification will be required before regular employee status is granted. Further, auxiliary personnel hired in peak traffic times should be encouraged to take MED courses, and personnel that remain on the auxiliary list after one year should receive MED training at the Ministry's expense. This would prevent the use of untrained auxiliary personnel in lieu of trained regular status deckhands.

Although there is some turnover of personnel, the Committee found that the personnel in the marine component are a relatively closed society. There are deckhands and mates that have their Master Minor Waters certificate, and this means that the system can use these certified personnel to relieve up the line as considered necessary. The Committee finds it inappropriate to have a deckhand relieve up the line as far as a Master of a vessel. In this instance, to be a deckhand one day and a Master the next and then back to deckhand causes considerable difficulties, particularly in command and control and personnel relationships. There is a need to refine this system certification usage.

It was found that the Masters in this system were extremely good at handling their ships, and they did this in a confident and professional manner. However, the Committee observed that Masters were not well disposed to taking charge in an emergency situation. There are reasons for this inability to do so, and in some cases it is because of the lack of appropriate communications equipment. The primary reason appears to be the lack of training in taking

charge of situations, and a review of the training records indicates that most of the Masters do not have MED C and D, the courses dealing with taking charge of emergency response training and command of emergency situations. The Committee found that most of the emergency drills that were executed in an unsatisfactory manner were because Masters did not take command of the situation. The Committee recommends that all Masters be required to complete MED C, the officer certification course, and MED D, the senior officer course.

It was interesting to note that Engineer Officers (Third Class) have MED C and D as a requirement of their certification. There is an anomaly in the system, since a Master Minor Waters certification does not include the same requirements. It is the Master who takes command in emergency situations and because of this, the training as given in MED C and D should be mandatory. However, this is not the case, but from what has been observed during the emergency drills conducted, the recommendation for MED C and D training for Masters stands.

It was noted that the system still uses "Permits" for Fourth Class certified engineers to stand shifts as chief engineer. Although this is allowed by the Canadian Coast Guard, it is considered that "Permits" should not be requested for the convenience of the system when there are certified Third Class Engineers available. The Ministry should take this situation under consideration, as it does affect the morale of those who are properly certified.

The Committee is pleased to see the excellent Marine Engineer Apprentice Program in place in the Inland Ferry system. The Marine Manager deserves credit in sustaining this program since these apprentices do supplement Canada's inventory of marine engineers. This is not being done on a regular basis by many Marine Companies, and to a certain extent they depend on offshore marine engineer certified personnel to fill their vacancies.

One glaring omission noted by the Committee was the lack of management training for the Senior Captains and Masters. This deficiency showed itself in many areas and particularly in communications, conflict management, labour relations, developing subordinates, organizing, planning, problem-solving and decision-making, and team building. **The Committee recommends that Senior Captains and Masters be given a basic management course, and this basic block be built upon with more advanced courses.**

A course fitting the requirements of the marine component could be organized at training centres such as the Justice Institute of British Columbia.

There is the question of leadership, and this was a scarce commodity in the field units. Leadership means engendering the trust and respect of your subordinates, and the Committee found that this was not evident in most of the units inspected. Leadership is a difficult quality to define, but it is not acquired by management training, it is something that is gained from a combination of experience and good examples and judicial application of wisdom. Employees of the marine component indicated that there is a lack of trust and respect in the system, and they want senior officers that will lead them in a professional, competent and compassionate manner. The Ministry should address this subject before selecting Senior Captains to command their units.

INSPECTION METHODOLOGY

OVERVIEW OF VESSELS IN THE INLAND FERRY FLEET

The Inland Ferry vessels are under the operational control of Regions/Districts, and there are five Regions that have licenced, cable or reaction ferries. There are seven licenced vessels, four cable ferries, six reaction ferries (although one ferry at Lytton is operated by a private contractor), one tug and barge operation at Barnston Island being operated by a private contractor, and one motor vessel and barge operation at Sicamous which is privately owned but subsidized by the Ministry.

The licenced ferries are under the command of a Senior Captain (District Marine Manager), and some of the ferries are supervised by Area Managers. The distribution is as follows: Senior Captain - licenced vessels KLATAWA and KULLEET at Albion; Senior Captain - licenced vessels GALENA and SHELTER BAY on the Upper Arrow Lake, cable ferries ARROW PARK at Arrow Lake and NEEDLES at Fauquier; Senior Captain - licenced vessels ANSCOMB and BALFOUR on the Kootenay Lake, cable ferries HARROP on the West Arm of Kootenay Lake and GLADE on the Kootenay River; Senior Captain - OMINECA PRINCESS at Francois Lake; Area Managers - reaction ferries at Big Bar, Little Fort, McLure, Marguerite and Usk.

The Committee spent 2-3 days in each area inspecting the licenced vessels, and about four hours to a day inspecting the reaction and cable ferries, depending on the state of the vessel. The aerial tramways at Big Bar, Little Fort, Marguerite and Usk were also inspected.

The inspections were conducted taking into account the requirements of the Canada Shipping Act, along with the attendant Regulations to this Act; the Ministry's Marine Services Policy and Procedures Manual (draft); and the International Maritime Organization Guidelines on Management for the Safe Operation of Ships and for Pollution Prevention, Appendix 1, "Suggested Subject-Matter for Operations Documentation." The IMO's suggested documentation was revised to fit the ferry inspections by the Chairman and this inspection format was agreed to by the Committee members. The revised IMOs documentation is included in this report as an Appendix.

TECHNICAL INSPECTION OF VESSELS

The Committee members inspected the entire vessel including the shipboard and departmental organization, reporting procedures, passenger and vehicle control, communications between Senior Captains/vessels and Ministry, provision and maintenance of documents, equipment maintenance instructions, loading and discharging procedures, operational reports, trim and stability, procedure for repairs and maintenance of equipment and vessels, pollution control, disposal of oil/noxious liquids/garbage/grey-black water, traffic records, sailing limits, securing procedure prior to departure of a berth, the functioning of all operations equipment, operational records, special requirements in bad weather/fog, manoeuvring data, emergency procedures and equipment, management, hull, machinery and all void spaces, terminal organization and control, and docks.

EMERGENCY DRILLS

The emergency drills were conducted using a scenario system starting with a man overboard, followed by either a car fire on the car deck or a generator room fire, followed by the fire spreading to either the engine room or pump room with a crewman trapped in the space, followed by the Master being incapacitated, followed by a discovery of a bomb which necessitated the ship to be abandoned.

The drills were carried out with passengers and vehicles aboard, and the crew members were required to control the crowd, muster the passengers at the abandon ship stations, have them don lifejackets and explain the flotation equipment.

The Committee is pleased with the reaction of the passengers and their enthusiastic response. Many passengers commented on the manner in which these drills were conducted, and they were pleased that this type of inspection was being done. The Committee appreciates their cooperation in this instance.

PERSONNEL INTERVIEWS

The Committee members interviewed the crew members during the inspection of the vessels. The Chairman formally interviewed crew members at each grade level and all

employees who wanted to be interviewed, a total of 58 (34%) of the personnel. In addition, the Chairman interviewed a total of 41 managers, including the Senior Captains, Senior Chief Engineers, District Highway Managers, Regional Managers Operations, and Regional Directors.

From Ministry sources, as of September, 1992, it is of value to note that there were, on average, 414 employees in the Districts, in Regions 1 to 5, and that 177 (43%) were marine personnel. Of the auxiliary employees, on average, 86 (75%) of the 115 in the Districts were marine.

Wherever possible, the Chairman called on the local MLA and requested that any comments or letters from the local residents be forwarded to the Committee. The cooperation of the MLAs is very much appreciated and the Committee is pleased with their interest in this review.

MAJOR INSPECTION ISSUES

OVERVIEW OF INSPECTION ISSUES

As an overview, the Committee observed that in the majority of vessels the crews did not respond to the emergency drills in the professional manner that was expected. The scenario drills that were conducted were carried out in a disjointed manner with a lack of command and control from the Masters and the on-scene commanders (Mates).

The Committee recommends that the Ministry institute an extensive, centralized and consistent training program, with emphasis on realistic scenarios and regular drills. It is imperative that all officers in licenced vessels receive command and control courses, either in-house with a certified team of trainers, or at the Pacific Marine Training Institute.

Further, it is recommended that deckhands receive refresher courses in basic seamanship, fire fighting and safety, and particular attention should be paid to emergency rescue boat skills.

In cable and reaction vessels the training requirement is even more acute. The Committee found that in most cases cable and reaction ferry operators have not had any training at all. The Committee recommends that cable and reaction vessel operators be given the same courses as those prescribed for licenced vessels. This would include basic seamanship,fire fighting to include vehicle fire fighting, and safety to include emergency rescue boat skills. **The Committee considers that the total disregard for the training of cable and reaction vessel operators to be most unacceptable, and a liability to the travelling public.**

The major inspection issues have been extracted from the individual vessel reports and are summarized in the following sub-sections and tables. The inspection reports are included as Appendices to this report.

LICENCED VESSELS

It should be expected that the officers and crews of licenced vessels would have been well trained, particularly in emergency procedures, considering the certification required for officers

and the training available to the crews. That the Committee found many of the scenario driven drills to be unacceptable is a reflection on the lack of standards and the interest of managers to ensure appropriate training in safety procedures and the time to practice emergency safety skills.

The Committee found that, from an operations perspective, the MV OMINECA PRINCESS at Francois Lake, was well run and maintained; the GALENA and SHELTER BAY in Upper Arrow Lake, and the ANSCOMB and BALFOUR in Kootenay Lake met the minimum standards; and, the KLATAWA and KULLEET at Albion were unacceptable. The standard of emergency drills in these vessels ranged from barely meeting minimum standards to unacceptable.

The Committee inspected the Albion unit twice, and on both occasions the operation was found to be unacceptable, and this includes the emergency drill standards. It is important to note that the two vessels at Albion are involved in a very intense schedule, wherein the vessels load, transit and unload in less than thirty minutes, leaving the crews very little time for maintenance, cleaning of the vessels and for emergency drills. In addition, the transit has its problems with fishing vessels, nets, other vessel traffic, deadheads and logs, and poor visibility in the autumn and winter months. **The Committee does not consider these operational problems to be an excuse for poor safety standards, but it is incumbent on management to ease the workload on its employees, and mandatory that the unit have a Senior Captain with good leadership qualities and who has an interest in the well being of the employees.**

Apart from the assessment on the operation of the vessels concerned, the Committee did find the personnel in these vessels to be willing and interested employees, but the lack of training, time to do their drills and the leadership provided by many of their seniors mitigated against their efforts. Further, the Committee found that the vessels carried good fire fighting equipment. **The one major piece of equipment that must be given immediate attention is the emergency rescue boat and davit system.**

The following issues need special attention: clearance procedures; adequacy of vessel fire and passenger lanes; and, runaway lanes.

Clearance procedures: The Committee observed that the loading officer in the licenced vessels does not follow a clear procedure on completion of loading and securing the vessel for transit. When the vessel was deemed to be ready for departure, the loading officer was seen to give the Master a "thumbs-up", and in many instances there were no signals at all. This practice for departure clearance is unacceptable, and it is recommended that clearance procedures be specific and positive and communicated by the loading officer to the Master by hard wired phone.

Fire and passenger lanes: The space required to evacuate passengers from their vehicles and to provide room for fire parties and equipment is a function of the manner in which the loading officer loads the vehicles on the car deck. It was observed that, in the licenced vessels, vehicles were loaded in such fashion that in many instances insufficient room was left to ensure a safety lane for passengers and fire parties. This was particularly noticeable at the bow and stern of the vessels where very little room was left for any movement whatsoever. This would cause serious problems, particularly in evacuating seniors and the physically challenged. There is a need for a loading procedure to ensure that sufficient room is left for the passage of fire parties and the evacuation of passengers from their vehicles, and loading officers must be instructed to ensure that this occurs.

Runaway lanes: The Committee observed that at Francois Lake (Southbank), Kootenay Bay, and Needles, the runaway lanes were unsafe. At Southbank there is no runaway lane as such, even though there was a serious accident in 1979, where a runaway logging truck caused considerable damage to the ferry dock and stopped short of damaging the ferry. Kootenay Bay and Needles have runaway lanes, but at peak traffic periods, it means that a runaway vehicle must use the approaching traffic lane and cross the ferry lineup in order to use it. The Committee recommends that this unsafe situation, in all three areas, be rectified.

Recommendation	Albion	Kootenay Lake	Upper Arrow Lakes	Francois Lake
Safety Practices and Equipment:				
Emergency Plans for the evacuation and fire control systems should be produced for each vessel and posted in several prominent places on board each vessel.	X	X	X	
Post signage for emergency procedures and use of lifejackets at appropriate locations so that passengers are able to read and understand what is required of them.	X	X	X	
Enforce the "NO SMOKING" and Propane regulations on the car decks.	X	X	X	X
All runaway lanes should be re-examined by the Highways engineers with regard to safety.		X	X	X
A series of quick reference "Q" cards should be produced for all emergency procedures.	X	X	X	X
Produce emergency procedures handbook and up-to-date muster lists.	X	X	X	X
Operational Deficiencies:				
Standardize all rescue boats to the "NEEDLES" model with "Mills" type quick release.	X	X	X	X
Communications between the Bridge, Chief Officer and engine room during an emergency needs to be dramatically improved.	X	X	X	X
Housekeeping should be addressed as a major problem.	X			
Ensure WHMIS compliance.	X	X	X	X
Pollution containment equipment should be supplied in a standard and easily utilized container on all vessels.	X	X	X	X
A Ministry Policy on the treatment of the physically challenged needs to be produced and implemented throughout the fleet.	X	X	X	X

Recommendation	Albion	Kootenay Lake	Upper Arrow Lakes	Francois Lake
Technical Deficiencies:				
All electrical starting motors should have battery isolating switches.	X	X	X	X
Fit remote fire alert alarms for engine rooms in all wheelhouses, CO_2 flooding should be standard in all engine rooms.		X		
Training of Marine Personnel and Machinery Operators:				
All officers and crews should have additional training in emergency procedures and possible scenarios, practice realistic emergency drills regularly.	X	X	X	X
All Masters and Mates should be required to attend the Command and Control MED D.	X	X	X	X
Produce and implement a consistent training schedule for all operations.	X	X	X	X

CABLE VESSELS:

The cable ferry at NEEDLES is an outstanding example of what can be achieved in safety equipment and in the professional deportment of operators. The safety systems that are fitted in NEEDLES should be standard in all the Inland Ferry system vessels.

The operation at ARROW PARK and HARROP was acceptable, but the emergency rescue boat and launching system was unacceptable and should be replaced by the one-man operable system that is fitted in NEEDLES.

GLADE was found to be unacceptable, and the operator even **refused** to carry out a man overboard drill. The problem with respect to emergency drills for these vessels has already been referred to in this report, and it stems from the fact that these operators are not classified as marine employees, but as Machinery Operators; fire fighting and safety training has been denied these operators; and, that the senior managers give these operators very little support.

Recommendation	Kootenay River GLADE	West Arm Kootenay Lake HARROP	Arrow Lake ARROW PARK	Fauquier NEEDLES
Safety Practices and Equipment:				
Produce emergency procedures handbook and an up-to-date muster list.	X	X	X	X
Post signage for emergency procedures and use of lifejackets in prominent and easily accessible areas.	X	X	X	X
Enforce the "NO SMOKING" and Propane regulations on the car decks.	X	X	X	X
All runaway lanes should be re-examined by the Highways engineers with regard to safety.				X
Operational Deficiencies:				
Update lifejackets to modern standards.	X	X	X	X
Ensure WHMIS compliance.	X	X	X	X
A "quick change" system for the BIRPS should be considered for all vessels where applicable.	X	X	X	
Pollution containment equipment should be supplied in a standard and easily utilized container on all vessels.	X	X	X	X

Recommendation	Kootenay River GLADE	West Arm Kootenay Lake HARROP	Arrow Lake ARROW PARK	Fauquier NEEDLES
Technical Deficiencies:				
All electrical starting motors should have battery isolating switches.	X	X	X	X
Fit remote fire alert alarms for engine rooms on all wheelhouses, CO_2 flooding should be standard in all engine rooms.	X	X	X	
Standardize all rescue boats to the "NEEDLES" model.	X	X	X	
Training of Marine Personnel and Machinery Operators:				
Operators should be properly trained and practice emergency drills regularly.	X	X	X	
Produce and implement a consistent training schedule for all operations.	X	X	X	X

REACTION VESSELS:

Most of the reaction ferries are located in isolated areas, and this makes it difficult for managers to maintain a continual watch on their operations. These vessels are attended to by Area Managers, and the attention paid to these vessels is proportional to the time these managers have to devote to the vessels in amongst their other highway work.

The Big Bar reaction ferry operation was found to be very good, and the emergency drills were carried out in an efficient and professional manner. The ferries at Usk, Marguerite, Little Fort and McLure met minimum standards. The Lytton ferry, which is on contract from the Ministry, was found to be totally unacceptable. **On completion of this inspection, the Committee Chairman immediately informed the Ministry that the Committee strongly recommends that the Lytton ferry be withdrawn from service, subjected to a major inspection, properly repaired and the operators be trained in emergency procedures.**

Reaction ferry operators do not receive training in fire fighting techniques, vehicle fire fighting or in emergency procedures. **The Committee recommends that this situation be corrected, and that these operators receive the same kind of training that is given to employees engaged in the licenced vessels.**

There are four Aerial Tramways, and these are at Big Bar, Usk, Marguerite and Little Fort. The tramways are being operated in an acceptable fashion, and the operators do know the secondary and tertiary emergency methods for moving the tramway cab. The Committee found that the maintenance documentation was not readily at hand, and that unauthorized modifications have occurred to the cabs. **This latter item is serious, and the Committee recommends that a system be put in place to ensure that this practice is stopped.**

Recommendation	Big Bar	Usk	Marguerite	Little Fort	Lytton	McLure
Safety Practices and Equipment:						
All operators should wear lifejackets or vests as required by WCB, at all times.	X	X	X	X	X	X
Post signage for emergency procedures and use of lifejackets. All lifejackets should be stored in well marked lockers.	X	X	X	X	X	X
Enforce the "NO SMOKING" and Propane regulations on the car decks.	X	X	X	X	X	X
Vehicles should be chocked at all times on the ferry, this is not being done.	X	X	X	X	X	X
Additional fire extinguishers be supplied to all reaction ferries.	X	X	X	X	X	X
There must be a system to ensure that these are kept up-to-date.	X	X	X	X	X	X
Anchor and cable to be properly ranged and ready for immediate deployment.	X	X	X	X	X	X
Aerial Tramway modifications must be standardized and approved by Headquarters.	X			X	N/A	N/A
Operational Deficiencies:						
All ferries should have a reaction ferry aerial tramway log in addition to a standard operating booklet containing maintenance routines, operating instructions, emergency procedures and required reports. There is a great need for the system to be standardized.	X	X	X	X	X	X

Recommendation	Big Bar	Usk	Marguerite	Little Fort	Lytton	McLure
Annual inspections of the various operations and detailed reports produced.	X	X	X	X	X	X
Access to all aerial tramways should be improved to allow the physically challenged to use them.	X	X	X	X	N/A	N/A
Dangerous cargo signs to be posted at the landings before boarding the ferry.	X	X	X	X	X	X
Technical Deficiencies:						
Some form of lighting and power supply should be considered for all reaction ferries.		X	X	X	X	X
Standardize all rescue boats to the "NEEDLES" or "BIG BAR" model.		X	X	X	X	X
Consideration should be given to fitting remote release lifebuoys to allow for easy deployment.	X	X	X	X	X	X
Training of Marine Personnel and Machinery Operators:						
Operators should be properly trained in all emergency procedures and first aid, and practice emergency drills regularly.	X	X	X	X	X	X
Produce and implement a consistent training schedule for all operators.	X	X	X	X	X	X

TUG AND BARGE OPERATIONS:

Tug and barge ferry service is provided at Barnston Island and at Sicamous. These ferry services are privatized.

Barnston Island met minimum standards and was operating in accordance with current regulations. There appears to be a problem at this location with the service being provided to the expectation of the residents. The present service is a drive-on back-off system, which is proving to be difficult for many of the motorists, and the residents have indicated that the tug and barge service is insufficient to carry the present and near future expected traffic. Since the type and carrying capacity of the vessel provided on a particular route was not in the Committee's mandate, it is suggested that the Ministry address the problems with this service as requested by the Barnston Island residents.

The Sicamous ferry service is being operated by its owner in an efficient manner. The Committee did find a problem with the Inspection Certificate, and it is recommended that this anomaly be resolved by the Ministry in consultation with the Canadian Coast Guard and the owner.

Recommendation	Barnston Island	Sicamous
Safety Practices and Equipment:		
Post signage for emergency procedures and the use of lifejackets.	X	X
Enforce the "NO SMOKING" and Propane regulations on the car decks.	X	X
Operational Deficiencies:		
Pollution containment equipment should be supplied in a standard and easily utilized container on all vessels.	X	X
A "quick change" system for the BIRPS should be considered for all vessels where applicable.	X	X

RECOMMENDED FIRE AND EQUIPMENT PLAN AND CHECK-OFF LISTS

A recommended Fire and Equipment Plan, along with appropriate Check-Off Lists, has been included as an Appendix to this report. This Plan and the Check-Off Lists resulted from a review of all the ideas in the licenced vessels, along with the experience brought from the Committee members and Advisors, and it is recommended that all ferries in the system adopt these measures in order to improve their standards to an acceptable and consistent norm.

MAJOR PERSONNEL RELATED ISSUES

COMMUNICATIONS AND LABOUR RELATIONS

The Committee found that communications between the marine component, the Regions and Districts, and the Ministry leaves much to be desired. The confusion caused by the organizational changes within the Ministry has left the marine employees in a quandary: reporting to the Districts for operations, which includes personnel relations, and to Headquarters for standards and engineering requirements. In some instances, District Highway Managers have curbed the Senior Captain from making reports to the Marine Manager, have not provided or have reduced secretarial support, have skirted the Senior Captain by sending information directly to the crew members, have selected marine employees for courses without reference to the Senior Captain, and have instigated inquiries on marine personnel without informing or including the Senior Captain. This complete disregard in reporting procedures and in manager relationship has affected the morale of the marine employees and the safety of the operation.

The Marine Manager has been removed from the operational chain of command, and is looked upon by the Regions and Districts as an engineering consultant and compliance auditor. In effect, the Marine Manager's authority has been eroded to such an extent that his counsel on marine matters, professional and in personnel matters, is not heeded to any great extent. This situation was most evident in the recent Arbitration Report dealing with the reduction of crew size in the ANSCOMB. In this instance, if Region had asked for professional marine assistance, a work stoppage and the resulting arbitration would probably not have occurred.

The most significant way to describe the lack of communications between the Regional/District managers, and this includes the Senior Captains (District Highway Managers), and the marine employees is to note that in one Region alone, of 1300 union members of which 100 are marine component employees, there were 41 active grievances, 25% of which arose from the marine component employees: that is 13% of the members generated

25% of the grievances. These grievances should have been resolved at the local level, but were filed at arbitration, at considerable expense to the parties.

These management decisions were made at the Regional level without reference to a coordinating authority, resulting in a wide range of "same issue" contract interpretations. The Committee was concerned with the Ministry's lack of coordination in its labour relations responses at the local level, **and in three of the four Regions, where there is a Senior Captain (District Marine Manager), employer/employee relations were poor.**

There is a problem with the Senior Captains (District Marine Managers) being able to communicate effectively with their personnel. From employee interviews and from a review of the documentation made available to the Committee, it appears that three of the four Senior Captains have not engendered the trust and respect of their employees. The Committee feels that this is a serious situation which must be resolved in order to re-establish effective communications with the employees.

During the interviews, one issue was of major concern to the majority of marine employees, and that was the inability of management at the local and higher levels to discuss changes in the system and equipment with them before these were incorporated. The employees feel that all management has a total disregard for their comments and for their professional input into the changes that they will have to put into practice. This situation has caused considerable discontent throughout the entire marine system, **and the Committee recommends that management briefs the personnel on issues that will affect them most, and take into consideration the comments made by the employees.**

Much of the discussion has been centred on the licenced vessels, and, apart from one cable ferry which has its own very senior operator, the relationship with management is the same as already described. The majority of cable and reaction ferries have only one operator on shift, and it is apparent that very little attention is paid to their needs. From the Committee's inspection of these vessels, it was found that in the majority of instances, management has been delinquent in providing support to the operators, particularly the need for authority to adequately control passenger's and driver's disregard for directions; the need for a proper uniform; and the need to ensure that operators receive time for crew rest and meal

breaks. This type of inattention by management does not foster good employer/employee communications or relations. **The Committee recommends that this inattention to the needs of the cable and reaction ferry operators and the problems noted be rectified.**

It was noted that cable and reaction ferry operators were not included in the system as marine employees, but were in a classification that has no relationship to personnel employed in ferries. Cable and reaction ferry employees are classified as Machinery Operators, in the same classification with truck drivers. This inappropriate classification for these operators has removed their need for the professional involvement required in the safety of the passengers and of the vessel. **It is recommended that the operators employed in cable and reaction ferries be reclassified to a classification which reflects their work and the responsibility that the Ministry demands of its marine employees.**

In all five Regions, the Committee found significant variances in all marine matters, and this included: training, vessel maintenance, labour relations, personnel relations, communications, the availability of the Senior Captain, and the response to marine issues on the part of the immediate management. **The Committee was concerned with the lack of Ministry wide standards in marine operations and in personnel relations. The Committee recommends that the issue of standards for the marine component be resolved on a priority basis.**

Good communications and personnel relations are most important in a system that relies on their employees to ensure efficient operations and the safety of the travelling public. The following recommendations are pertinent:

- That the Ministry adopt a centralized labour relations model in respect to marine component issues.
- That labour relations responses be coordinated through a Headquarters Personnel officer who reports to the Marine Manager and not through the Regional Personnel Staff.
- That the Marine Manager participate in all collective bargaining sessions relative to the marine component employees.

- That Senior Captains (District Marine Managers) be required to have a basic management course, and in particular those subjects dealing with employee and labour relations.
- That the Marine Manager be required to hold regular meetings with the Senior Captains (District Marine Managers) to ensure that promulgated standards are maintained.
- That Senior Captains (District Marine Managers) be required to hold regular meetings with the shift Captains and to attend Tool Box meetings with sufficient regularity to ensure that the crews are apprised of Ministry policy, procedures and programs.
- That the Ministry and the bargaining agent, the British Columbia Government Employees' Union, schedule quarterly meetings of the Marine Services Joint Committee.
- That the Marine Services Joint Committee be fully utilized to ensure a more cooperative and proactive approach to employer/employee relations.
- That the Ministry provide uniforms to cable and reaction vessel crews identical to that provided to the crews of licenced vessels.
- That the Ministry provide rest and meal break periods to the crews of reaction and cable vessels.
- That the Ministry and the Bargaining Agent negotiate proper classification descriptions for reaction and cable vessel crews.
- That the Ministry designate the following staff in accordance with the grievance procedure at Article 8 of the Master Agreement, as follows:

Step 1 Designate	Senior Captain.
	District Highways Manager (reaction ferries only).
Step 2 Designate	Director Marine Highways
Step 3 Designate	Deputy Minister

APPRAISALS AND CAREER DEVELOPMENT

The Performance Planning and Appraisal system is probably the most important instrument available to the Ministry to ensure that the employees within the system are performing to the standards expected. The Committee made a limited review of the Appraisal system, only to find that the appraisals completed on employees were done in a cursory fashion and that the professional information of interest to the Committee members was not recorded. The Ministry's appraisal system does not lend itself to recording specific performance factors and professional attributes.

Since the marine employees are action orientated, and this should include the Senior Captains, the Committee was looking for the following recorded performance factors: the acceptance of responsibilities and duties; the application of job knowledge and skills; the ability to analyze problems or situations; the decisions made and the action taken; action on plans and preparations for instituting these; the ability to delegate, direct and supervise employees; performance under stress; and the interest in the well-being and development of subordinates. Other professional attributes of interest to the Committee included: professional knowledge, appearance, conduct, intellect, integrity, loyalty, and dedication.

The Committee found that the majority of the performance factors and attributes, of professional interest, were not commented on in the appraisals reviewed. This meant that the Committee had to assess Senior Captains and officers within the fleet from their performance during the inspections. The performance of Senior Captains in this instance has already been commented upon, and the majority do not meet the performance and professional standards required of senior marine officers.

The Committee found that the appraisals do not lend themselves to important decisions that must be made in succession planning, promotion within the system, personnel selection for courses and upgrading, or for recommending a course of action in a variety of personnel matters. In fact, managers did not seem to be overly concerned that these issues were not being addressed. **If managers were concerned with these issues, the Committee would have noted those in place and the success of these requirements. This was not the case.**

The Committee found that the Ministry needs to review its recruitment and selection procedures and that a standard must be devised by which potential employees can be assessed. At the present time, recruitment is done by the Regions, and this process, fairly or unfairly, is viewed by the employees to be lacking in integrity, and subject to paternalism and local desires.

The Committee makes the following recommendations:

- That the Performance Planning and Appraisal form be amended to include performance factors and professional attributes that are of importance to marine employees, and for managers concerned with fulfilling their duties in succession planning, career progression and development, recognition and in taking appropriate action in instances of unacceptable performance.
- That criteria for recruitment and selection for marine positions/employees be developed and adhered to by those in the position to recruit and select personnel.
- That selection panels should be standardized as follows:

Positions to be Filled	**Selection Panel**
Senior Captain	Director Marine Highway, **Chairperson**
Senior Chief Engineer	Assistant Marine Director
	Regional Manager, Operations
Masters	Director Marine Highway, **Chairperson**
	or
Mates	Assistant Marine Director
Chief Engineers	Regional Manager, Operations
	Senior Captain (local)
Deckhands	Assistant Marine Director, **Chairperson**
Oilers	Senior Captain (local)
Terminal Staff	Senior Chief Engineer (local)

COMMITTEES AND PROGRAMS

A Memorandum of Understanding was signed between the Ministry and the Union in 1986, wherein the parties recognize that it is in the best interests of both the Employer and the Employees to establish a Marine Services Joint Committee for the purpose of discussing matters of mutual interest. It is an excellent Employer/Employee labour relations committee

that if referred to on appropriate occasions would resolve many mutual labour relations matters. The committee was used to advantage in resolving the personnel matters resulting from the changes required when NEEDLES was converted from a licenced to a cable ferry. Senior Regional management did not use the committee to resolve the down-sizing of the crew of the ANSCOMB, and this resulted in an arbitration. **It is recommended that the use of this Employer/Employee labour relations committee before changes are made to the system would ensure the continued support of the employees and save the parties involved the costs in resolving disputes.**

There are a series of committee meetings that should be held at the local level. These include Captains' meetings, chaired by the Senior Captain; Tool Box meetings which are held between the Captain and the crew; and Safety Committee meetings that are normally held each month. It was found that the Captains' meetings were not being held or being held infrequently. These meetings are important, since they do ensure that the Captains are operating with a common interest and that they are maintaining efficient and safe standards. The different methods of operating as adopted by Captains in the fleet is a direct result of the lack of Captains' meetings, and in the Senior Captains interest in the operations of their vessels. The comment received from the Senior Captains was that there is insufficient time in the schedule to have these meetings and that the cost to do so is prohibitive. **The Committee finds this situation unacceptable, and notes that many of the emergency procedure deficiencies can be attributed to the lack of Captains' meetings and the lack of interest and flexibility on the part of the Senior Captains.**

Employees indicated that they are pleased with the Tool Box meetings, but many have said that their comments are normally disregarded, and generally, they are not even afforded the courtesy of a reply. **The Committee recommends that Senior Captains and Masters ensure that comments or initiatives made by their crews receive a decent review and a proper response.**

The Committee did not hear any adverse comments with respect to the Safety Committees. From what could be ascertained, these committees are functioning very well.

Employees commented on three programs, as follows: Wellness, Service Excellence, and the EXCEL Program. It was found that employees have heard of these programs, but many of them could not tell the Committee much about them. Although, the units did have program representatives, the reason and value of the programs has not been absorbed by the employees. Unfortunately, the employees indicated that they filled out a questionnaire on Wellness, and that was the last they have heard about it; the Service Excellence program is not well received by the marine employees, as they consider that their service to the public is excellent; and, the EXCEL program is viewed by many of the employees as a program only for a select few. **The Committee recommends that if the programs are important, then it behooves senior management to ensure that their employees understand the benefits to be derived from participation.**

RECOMMENDATIONS

The recommendations from the sections in this report are collated for easy reference. Recommendations pertaining to a particular vessel are given in the individual vessel inspection reports and are included as Appendices to this report.

MANAGEMENT

The Committee considers that the major problem is with the structure of the Ministry's organization. The Ministry is organized on "classical lines" in that the Regions form the operational line and Headquarters has a group of staff officers, providing expertise to the Regions, on what could be termed a responsive basis. Headquarters and the Regions are linked by Performance Agreements which commit the Regions to deliver quality service and products in a cost effective manner.

At the Headquarters level, the Chief Highway Engineer, along with his staff of specialists, provides the operational expertise needed by the Regions. Although there is an Agreement for the Chief Highway Engineer to provide services to the Regions, **there are no Terms of Reference for the Headquarters staff to interrelate with the Regions giving properly documented mutually responsive terms. The Marine Manager is ensconced within the Chief Highway Engineer's division, and the lack of appropriate Terms of Reference has been a dilemma for the incumbent. In addition, since the Marine Manager does not have direct control of the marine operations, as the organization is structured at present, the complex reporting procedure causes considerable confusion for the employees in the marine environment.**

It appears that the detailing of the Marine Manager's responsibilities is being done on a consensus basis, without reference to any marine specialist, and the Committee members have found this to be **most unsatisfactory**, especially when the safety of crew, passengers and vessels is of paramount importance. **It is the responsibility of Headquarters to delineate the interrelationship between staff and the Regions, and to provide the needed direction to ensure that the professional requirements are not eroded.**

The Committee has found that dislocating the Marine Manager from the operational chain of command in the marine component has caused a deterioration of the standards in the various units, and a lack of focus by the on-scene senior officers in these units. Senior Captains, in command of units, have to a degree abrogated their responsibilities with respect to ensuring efficient and safe vessels and the well being of their personnel. **The Committee has found this situation to be most unsatisfactory, since the effects of this decentralized management compromises the safety of the marine component system and the service to be provided to the public.**

The Marine Manager has been given a special responsibility,in that he is the Managing Owner/Ship's Husband of the licenced vessels. With the decentralization of the Ministry, the vessels now come under the operational control of the Regions, but the responsibility for the operations is still vested in the Marine Manager. Under Federal legislation, the management of a ship is entrusted, on behalf of an owner, to the Ship's Husband, and this person is subject to the same liabilities as if he were the managing owner. In the event of a marine incident, the present inconsistency in the Ministry's organization and management with respect to the command and control of the marine component would make it extremely difficult for the Ministry to limit its liability.

What has become very evident to the Committee is, simply put, that no matter how well motivated they may be, Regional, and District staffs are not equipped to deal with or relate to a marine operation. The reality has become the source of constant friction between the marine component and the Operational line personnel. The result has been that the quality of the marine operations has suffered, notably in efficiency, safety and morale.

- **The Committee recommends that the Ministry's decentralized system should be used to advantage, in that the marine component be treated the same as the Regions, with an Agreement between the Marine Component and the Ministry to provide ferry services to the Regions. This would centralize the Marine Component under one marine professional chain of command. The Inland Ferry system should be designated as the Marine Highway, with the mandate:**

to provide safe, efficient and effective marine transportation on behalf of the residents of British Columbia and the travelling public.

- **Further, it is recommended that the Marine Highway group be comprised of the managers, Senior Captains, officers and personnel of the current fleet; that the Marine Manager be designated a Director of the Marine Highway; and that this directorate be given the appropriate staff with which to discharge its responsibilities.**
- **It is recommended that Senior Captains be required to maintain their "hands-on" professional skills, and in doing so to set the example for commanding an efficient and safe operation. With respect to local operations, the Senior Captain should be given at least one dedicated clerk to ensure the continuity of administration at the local level.**

INSPECTIONS AND ENFORCEMENT

Licenced vessels are subject to periodic inspections as detailed in the Canada Shipping Act, and the Regulations pertaining to this Act. The inspections are conducted by the Canadian Coast Guard, Ship Safety Branch to the minimum standards prescribed in the Act. Two Regulations are important, namely: the "Boat and Fire Drill," and the "Safe Manning." These Regulations are used as the minimum standards expected of vessel crews during inspections and operations.

The recent inspections of the vessels by the Committee revealed that there were instances where the Inspection Certificates were in error, and the emergency drills showed that the crews could not conduct simultaneous duties as prescribed in the Regulations. The deficiencies in the emergency drills and procedures, as noted by the Committee, showed that the crews require better training and more detailed inspections.

- **The Committee recommends that the Ministry liaise with the Canadian Coast Guard to ensure that Inspection Certificates are accurate, and, if possible, that more rigorous vessel inspections be conducted to ensure compliance with the Regulations.**

The cable and reaction vessels are not subject to the Canada Shipping Act, and the Canadian Coast Guard does not have the authority to inspect these vessels unless invited to do so by the provincial government. The province does have a Ferry Act, but this legislation does not provide for inspecting cable and reaction vessels, and as a result there are no regulations pertaining to the safety, vessel equipment, emergency rescue equipment, emergency procedures, certification of operators, training of operators, or required inspection standards.

- This is a serious shortcoming in the provincial legislation with respect to ferries. **The Committee recommends that an amendment be made to the Ferry Act of British Columbia, to include the need for a yearly inspection of cable and reaction ferries, along with the appropriate criteria and the issuance of an Inspection Certificate.**
- **It is also recommended, that the inspection be delegated to an outside authority to preclude the possibility of conflict of interest.**

The Committee has reviewed the Ministry's "Marine Services Policy and Procedures Manual" and has determined that the Manual is not a truly user friendly document. Policies and procedures are not clearly separated, and **it is recommended that the Manual be rewritten similar to the example given in Appendix 1.**

The Aerial Tramways that are a part of four reaction ferry units, are governed under the Railway Act of British Columbia. The Committee found these units in reasonable condition, except that two were modified without the approval of Headquarters or the Inspection Authority.

- **The Committee recommends that a system be placed into effect to ensure that unauthorized modifications are not carried out on Aerial Tramways without the explicit permission of Headquarters and the Inspection Authority.**

The Committee has ascertained that the present Ministerial review is the first detailed inspection that has been carried out on the Inland Ferry vessels. The deficiencies found during the Committee's inspection showed that detailed and rigorous inspections are required.

- **The Committee recommends that the Ministry assume responsibility to ensure yearly inspections of all of their vessels, including operations, deck, technical**

and emergency procedures. Further, the Committee recommends that these inspections be conducted by an outside authority, that the officers and crew members be debriefed on the inspection, and that recommendations for corrective action be expedited by the appropriate responsible authority in Headquarters.

CERTIFICATION AND QUALIFICATIONS

The Committee found during the emergency drill scenarios conducted in the vessels of the fleet that many personnel failed to carry out their duties in a professional manner.

The Committee recommends the following action be taken:

- **Refresher courses for officer, engineers and deckhands, in Marine Emergency Duties, be programmed on a regular basis.**
- **Marine Emergency Duties certification be required immediately upon an employee acquiring regular status.**
- **Marine Emergency Duties certification be required for personnel that remain on the auxiliary list after one year and this training should be at the Ministry's expense.**
- **Certified personnel should not be allowed to relieve up the line from the level of deckhand to master. This system of certified personnel usage must be refined to ensure that discipline and authority is maintained.**
- **Masters and Mates require training in command and control, particularly in emergency situation. All require, at a minimum, the Marine Emergency Duties courses level C and D.**
- **The use of "Permits" to allow for substituting a lower qualification into a position requiring a higher certification should be discontinued.**
- **The excellent Marine Engineer Apprentice Program presently fostered in the fleet should be continued. Consideration should be given to extending the service time for an apprentice in order to complete all requirements for an Engineer Third Class.**

- **Senior Captains and Masters should be given a basic management course, and this basic block be built upon with more advanced courses.**
- **Senior Captains and officers within the marine component should be given sufficient diversified employment in order for them to gain leadership experience. To do so, may mean a supernumerary appointment to other marine organizations.**

MAJOR INSPECTION ISSUES

The Committee recommendations on the safety, operation, and technical standards, and training are extensive, and are shown as specific requirements in the tables accompanying the sections for Licenced, Cable, and Reaction vessels and the Tug and Barge operations.

An overview of the recommendations is as follows:

- Establish clear and unambiguous clearance procedures.
- Examine and establish safe runaway lanes prior to Ferry Terminal approaches, especially at Southbank (Francois Lake), Kootenay Bay and Needles.
- Correct "Marine Services Policy and Procedures Manual" to include clear and explicit instructions on safety standards.
- Emergency "Q" cards should be produced and made available for use in the wheelhouse and engine room.
- Signage in terminals needs to be placed and made conspicuous with respect to traffic control and the carrying of dangerous goods.
- Emergency rescue boats and davits in most vessels need immediate attention, and the system in the NEEDLES should be used as the model.
- A Fire and Equipment Plan, along with the appropriate Check-Off Lists, are required for all vessels in the fleet.
- All vessels in the fleet need pollution control systems irrespective of river or lake of operations.
- Policies and procedures are required for the safe loading and passage of the physically challenged.

- Effective communications equipment is required as a link between the Master and on-scene commander in an emergency situation.
- A hard wired telephone system is required to ensure a safe clearance procedure between the Loading Officer and the Master in all licenced vessels.
- An effective public address system is required in the wheelhouse of all vessels for passenger control.
- All vessels require an emergency procedures handbook and up-to-date muster lists.
- A Headquarters system is required to control modifications to all vessels, including Aerial Tramways.
- All vessels require properly documented planned maintenance routines.
- Cable and reaction ferry operators be given courses in fire fighting, including vehicle fire fighting, safety and emergency procedures.
- It is imperative that the Ministry institute an extensive, centralized and consistent training program, with emphasis on realistic emergency scenarios.
- Establish a standard method of training deckhands and provide the vessels throughout the system with a recognized training syllabus.

COMMUNICATIONS AND LABOUR RELATIONS

Good communications and personnel relations are most important in a system that relies on its employees to ensure efficient operations and the safety of the travelling public. The following recommendations are pertinent:

- Adopt a centralized labour relations model in respect to marine component issues.
- That labour relations responses be coordinated through a Headquarters Personnel Officer, who reports to the Marine Manager, and not through the Regional Personnel Staff.
- That the Marine Manager participate in all collective bargaining sessions relative to the marine component employees.
- That Senior Captains be required to have a basic management course, and in particular those subjects dealing with employee and labour relations.

- That the Marine Manager be required to hold regular meetings with the Senior Captains to ensure that promulgated standards are maintained.
- That Senior Captains be required to hold regular meetings with the shift Captains and to attend Tool Box meetings with sufficient regularity to ensure that the crews are apprised of Ministry policy, procedures and programs.
- That the Ministry and the bargaining agent, the British Columbia Government Employees' Union, schedule quarterly meetings of the Marine Services Joint Committee.
- That the Marine Services Joint Committee be fully utilized to ensure a more cooperative and proactive approach to employer/employee relations.
- That the Ministry provide uniforms to cable and reaction vessel crews identical to those provided to the crews of licenced vessels.
- That the Ministry provide rest and meal break periods to the crews of reaction and cable vessels.
- That the Ministry and the Bargaining Agent negotiate proper classification descriptions for reaction and cable ferry crews.
- That the Ministry revise the grievance procedure in order to utilize the professional marine managers for the first two steps.

APPRAISALS AND CAREER DEVELOPMENT

After a cursory review of the Ministry's Appraisal system and interest in career development, the Committee makes the following recommendations:

- That the Performance Planning and Appraisal form be amended to include performance factors and professional attributes that are important to marine employees, and for managers concerned, with fulfilling their duties in succession planning, career progression and development, recognition and in taking appropriate action in instances of unacceptable performance.
- That the criteria for recruitment and selection for marine positions/employees be developed and adhered to by those in the position to recruit and select personnel.

- That the selection panels should be standardized to ensure marine professional control and Regional representation.

COMMITTEES AND PROGRAMS

The Committee recommends the following action with respect to committees and programs:

- That the Ministry utilize the Marine Services Joint Committee before changes are made to the marine component system, since this would engender the continued support of the employees and save the parties involved the costs in resolving disputes.
- That the meetings already mentioned in the previous section, namely marine component middle management meetings and Captains' meetings, be held on a regular basis.
- That Senior Captains and Masters ensure that comments or initiatives made by the crews receive a decent review and a proper response.
- That the Ministry's programs be fully explained to ensure that the employees understand the benefits to be derived from participation.

APPENDIX 1

EXAMPLE FORMAT FOR MARINE SERVICES POLICY AND PROCEDURES MANUAL

The present Policy and Procedures Manual is not a truly user friendly document. It has a jumble of policies that are sometimes mixed in with the procedures. The general matter of the manual be rewritten in a much shorter more "user friendly" manner. There must be corrections pages to ensure that old policies and procedures are not kept.

It is recommended that the Policy and Procedures Manual be reformatted into several separate sections:

SECTION 1 - POLICIES

This section should contain all of the guidelines that are set down by the Ministry for the general operation and management of the ferry system on a Province wide basis and should ensure that there is a consistent level of service throughout the system. The headings that should go into this section are:

- **Mission Statement**

STATUTORY REQUIREMENTS

- Ferry Act of BC
- Canada Shipping Act
- Navigable Waters Protection Act
- WCB Act
- Public Service Act
- Human Rights Code of BC
- Union Agreement

GENERAL REQUIREMENTS

- General Operations
- Media Policy
- Communications
- Ferry Colour Scheme
- Reaction Ferry Policy
- Aerial Ferry Policy
- Licenced Ferry Policy

OPERATIONAL POLICY

- Accident Prevention Policy
- Policy on First Aid Training
- Safe Working Conditions
- Vandalism
- Training
- Fire and Boat Drill Policy
- WCB Occupational Health Rules and Regulations

SECTION 2 - PROCEDURES

This section should be written as **STANDING ORDERS** and be very specific as to what action is to be taken in a specific circumstance or exactly what the rules are for the onboard crew. The individual vessels may need to have this Procedures manual tailored to fit their needs. The headings that should go into this section are:

PUBLICATIONS

- Log Books
- Charts and Publications
- Certificates and Licences
- Flags and Signals
- Stability Book

GENERAL OPERATIONS

- Remembrance Day
- Routing
- Priority Boarding
- Physically Challenged
- Assured Loading
- Uniform and Protective Clothing
- Personal (grooming)
- Manning
- Safety

- Licenced Ferry Procedures
- Reaction Ferry Procedures
- Cable Ferry Procedures
- Aerial Ferry Procedures
- Cold Weather Precautions
- Animals
- Anchors
- Entry into Tanks and Enclosed Spaces
- Who and What First Aid Training is required
- Restraint of Passengers
- Drafts and Soundings
- Loading and discharge
- Car Deck Patrols
- Dangerous cargoes
- Rules for Traffic Handling
- Portable Radios
- Security
- Fire and Boat Drill Procedures
- Water Tight Doors

INCIDENTS & REPORTING

- Marine Incident Reporting
- Accidents to Vessels
- Accident Prevention Actions (i.e. what to do for a specific incident)
- Assistance to Disabled Craft

SECTION 3 - EMERGENCY "Q" CARDS

A set of cards on some form of ROLADEX should be made for quick reference by the officer in charge so that in an emergency he might be able to reference quickly a system that will ensure that all appropriate actions have been taken and that nothing is forgotten. These cards should be easily read and easy to understand. There should be a limited number so as not to confuse and they should be for real emergency procedures only. A second abbreviated set may be required for the engine room staff.

- Emergency Signals
- Man Overboard
- Abandon Ship
- Muster Stations
- Emergency Announcements
- Emergency Contact List
- Fire in a Vehicle
- Fire in Engine Room
- Fire Other Compartments
- Blackouts
- Steering Failure
- Oil Spills
- Medical Emergency

SECTION 4 - PLANNED MAINTENANCE SCHEDULE & PROCEDURES
This should be vessel specific and detail all O & M procedures to maintain the vessel in an ongoing state of good repair and housekeeping.

- Main Engines
- Auxiliary Engines
- Control Systems and Testing
- Cleaning and Chlorinating of Fresh Water Tanks
- Cleaning of Fuel Tanks
- Fuel and Lube Oil
- Coast Guard and other Inspection Services
- Fire Equipment Check-offs
- Charts and Publications Check-offs
- Deck Lubrication Schedule

APPENDIX 2

REVISED INTERNATIONAL MARITIME ORGANIZATION INSPECTION FORMAT

Shipboard organization:
- muster list/watch and station bill
- regular crew rotation
- auxiliary crew rotation
- officer/crew primary and secondary duties
- emergency duty stations (FF, AbS, MOB, DC)
- section leaders duties

Departmental organization:
- District Marine Manager's responsibilities
- Senior Chief Engineer's responsibilities
- Captain's, Mate's, Chief Engineer's responsibilities
- Senior Captain's meetings
- "Tool Box" meetings
- Methods to disseminate information
- District/Regional/Ministry internal communications
- Supply/stores/repair procedures responsibility

Reporting procedures:
- Method of reporting and to whom
- Chain of command
- Accident reporting procedures
- Unusual occurrences reporting procedures
- Routine reports, what and to whom
- Reports from senior officers and captains (monthly report of proceedings)

Passenger/vehicle control:
- Vehicle lane assignment (by size and weight, including physically challenged)
- Signage at loading area for correct lanes
- Loading of vehicles for trim and stability
- Responsible officer for loading arrangement
- Location in vessel for vehicles of physically challenged
- Passenger distribution (car deck, boat deck - any orderly method?)
- Passenger knowledge of vessel and emergency requirements
- Tape briefing whilst on board of emergency procedures; pamphlet on subject, etc.

Communications between vessels and Ministry:
- Method of passing information down-the-line to vessels
- Executive/officer responsible for ensuring that the crew are informed on various orders and issues
- Method of passing information, comments, suggestions up-the-line, and action taken and feed-back given
- Type of communications used

Inspections:
- Types of inspections
- Frequency of inspections and by whom
- Responsible executive/officer/agency for inspections
- Inspection scheduling officer
- Information/feed back/action taken during and after inspections (post inspection debrief and discussion)
- Forms for inspections and dissemination

Provision and maintenance of documents:
- Who ensures that documents are provided
- What documents are required under the regulations, policies, standing orders, etc.
- Where are the documents kept; ship's book, etc.
- What is kept in the ship's book
- Maintenance records, what and where kept
- Signing authorities
- Frequency of inspecting documents/records

Medical arrangements:
- Are crew medicals required as a condition of employment
- Frequency of medicals
- Medical facilities in vessels
- Requirement for a First Aid Instructor
- Requirement for crew training in First Aid
- Proximity of Medical/Hospital facilities
- Communications with MEDEVAC facilities
- Training in artificial respiration and in administering oxygen

Fitness for duty and avoidance of excessive fatigue:
- Rotation of crew/crew hours of work
- Officer/crew duties, hazardous, fatiguing
- Complaints

Equipment maintenance instructions:
- Planned maintenance routines/handbooks
- Operational/engineering responsibility for repairs
- Inspection of instructions/schedules
- Inspection of equipment for optimum performance
- Signing authorities for maintenance/repairs
- Frequency and mean-time between failures
- Repair authority
- Mean-time for repairs; down-time for vessels
- Engineering/operational limitations for sailing vessels
- Qualifications ... operations/engineering

Loading and discharging procedures:
- Procedure for dangerous cargoes
- Inspection of vehicles with dangerous cargoes before boarding
- Enforcement of safety regulations ... policy
- Signage explaining safety regulations at embarkation areas
- Safety of crew and passengers on loading/unloading

Security alongside:
- Safety of vessels on securing for the night
- Responsibility for the safety of the vessel
- Condition of vessel before securing for the night

Operational reports:
- Reports required on sailing/securing
- To whom are reports made

Monitoring Trim and Stability:
- Officer/crew member responsible for monitoring
- Frequency of observations
- Recording of information
- Evaluation of information
- Action taken to ensure trim/stability
- Fuel consumption orders and records
- Frequency of observing drafts
- Where recorded
- Who evaluates
- Action taken

Procedure when vessel is temporarily immobilized:
- Repair team action
- Who is involved
- Time between occurrences
- Mean-time before operational
- Responsibility for refits
- Responsible for refit lists
- Monitoring of refit
- Officer responsible for overseeing refit work
- Final resolution of refit list
- Refit time (on average)
- New equipment, who decides

Accidental spillage of liquid cargo/ship's fuel tanks:
- Equipment for containment
- Training in contamination containment/clean-up
- Reports required in incident
- Assistance for other agencies
- Frequency of occurrence

Disposal of oil/noxious liquids/garbage/grey-black water:
- Disposal facilities
- Pumping facilities
- Disposal of garbage

Verification of Passenger/vehicle numbers:
- Record of passenger/vehicle numbers
- Type of record
- To whom reported or forwarded
- Adherence to safe passenger/vehicle limits

Assessment of weather conditions:
- Bad weather limits (fog, snow, ice, wind, etc.)
- Who evaluates and decides to stay or proceed
- Does schedule dictate sailings
- Who evaluates the Met conditions
- What information is used to assist in decision
- Most hazardous periods on lake/river
- What avoiding action is taken when caught by bad weather during a crossing

Securing of equipment/vehicles:
- Whose responsibility
- Is equipment for securing vehicles available

Operational performance checks:
- Frequency of engines/steering gear checks
- Is there an emergency steering position
- Communication checks between stations/spaces
- What communications are available (tanoy, phones, UHF, walkie talkies)
- Check of pumps/generators on-line or stand-by (FF, DC, etc.)
- Damage control state (closing of WT doors, hatches)
- Check of external communications (UHF, VHF, distress)
- Gyro check
- Magnetic compass check, deviation card
- Last swing for deviation
- Navigational radar (type, daylight viewing, gyro feed)
- Navigational radar alarms (CPA to shore, nav dangers etc.)
- Competence in parallel indexing, clearing lines, etc.
- Charts up-to-date
- Charts are they used
- Hydrographic information
- Fathometer reliable; method of checking accuracy
- Log; is it used to attain economical speed
- Consumption when using economical speed (time)
- Navigational aids, lights, transits, buoys, etc.
- Who services these
- Are hydrographic notes forwarded
- Stability of vessel ... where recorded
- Navigation lights in accordance with regulations
- Emergency navigation lights
- Fog horn reliable
- Emergency fog horn available

Operational Records:
- Ship's log
- Engineering log
- OOW notebook

Special requirements in bad weather/fog:
- Fog lookouts
- Competence in radar navigation
- Communications to pertinent stations
- Limits for sailing
- Special sea duty stations
- Professional guidance for minimizing damage due to rough weather

Manoeuvring data:
- Where recorded
- Agency responsible for data

Emergency procedures:
- MOB, FF, DC, AbS
- Type of emergency equipment
- Frequency of drills
- Knowledge of emergency procedures
- Knowledge of equipment and location
- Training, frequency and location
- Maintenance of equipment
- Record of drills, maintenance, etc.
- Inspections, and by whom
- Knowledge of types of fires
- Equipment to fight different fires
- Equipment last inspected, frequency of inspections
- Location of equipment, pertinent to passengers
- How are passengers made aware of their muster station
- Communications used to alert passengers to an emergency
- Passenger control and by whom
- Physically challenged persons, how are they handled
- Security patrols whilst underway and alongside

Management:

- Command and control
- Line of communications
- Knowledge of executives of marine operations
- Final control of operations and management of resources
- Financial responsibility
- Repair/refit responsibility
- Supply responsibility
- Job descriptions/occupational analysis
- Resolutions of personnel problems/complaints
- Maintenance of personnel records
- Responsibility for training and certification
- Knowledge of type of training required
- Frequency of training
- Requirement to take training
- Training as a condition of employment
- Procedure for hiring marine personnel
- Effectiveness of Standing Orders & Policies and Procedures
- Responsible executive/officer for the welfare of personnel
- Welfare policies
- Employer/Personnel/Union committees
- Review pertinent letters, orders, publications, etc.

APPENDIX 3

FIRE AND EQUIPMENT PLANS AND CHECK-OFF LISTS

Diagrams No. 1 and 2 show a Fire Control Plan and Lifesaving Appliances Plan reproduced by kind permission of Royal Sealink Express. These plans show all of the lifesaving equipment, escape route and other pertinent information required for emergency response. The plans are posted in conspicuous locations on the vessel and are colour coded. The Muster List that accompanies these diagrams is also appended and it can be seen that a colour coding system has been used to designate the functions of each deckhand. This type of system could be easily modified to suit the requirements of the Inland Ferry System.

The Fire Control Plan and Lifesaving Appliances Plan, and the Muster List with accompanying diagram are "pull outs" and are inserted at the back of this report.

A series of check-off lists should be produced for:

- Fire Extinguishers and Stations
- Emergency and lifesaving equipment
- CSI inspection check-off list
- Greasing and Lubricating Schedule
- Daily, Weekly and Monthly routines
- Charts and Publications (including Ships Documents) Check-off List

These check-off lists should also have a series of signature columns that can be used to ensure that the check-offs are done regularly and it is considered that if a different crew member is scheduled to carry out the check-offs each time, then all would become more familiar with the vessel.

An example Fire Extinguisher list has been included.

MINISTRY OF TRANSPORTATION AND HIGHWAYS								
FIRE EXTINGUISHERS					DATE & PERSON			
	TYPE	SIZE	LOCATION	LAST CHARGED	Check By	Check By	Check By	Check By
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								

FIRE STATIONS					DATE & PERSON			
	Type	Size	Location	Last Tested	Check By	Check By	Check By	Check By
1.								
2.								
3.								
4.								
5.								
6.								

APPENDIX 4

ALBION FERRY INSPECTION
(LICENCED FERRY)
4-6 AUGUST & 5-6 OCTOBER, 1992

INTRODUCTION

The Inland Ferry Review Committee commenced and finished inspections of the Ferry System with the two vessels in the Albion - Fort Langley area, the MV KULLEET and the MV KLATAWA. These vessels provide passenger and vehicle service across the Fraser River, a distance of approximately 1000 yards and a five minute ferry ride, but the total operation of loading and unloading and transit takes about 15 minutes.

The vessels operate on a demanding schedule with one vessel operating continuously 24 hours every day, with a slower pace in the "graveyard" shift, 0200 to 0530 hours, every half hour, and the other from 0530 to 2300 hours in the summer period and to 2100 hours in the winter. There are many implications involved with such a schedule, and unless the vessels have dedicated, interested and enthusiastic crews, safety and efficiency suffers. The intensity of the job is evident from the passenger and vehicle volume and this is illustrated by the increase in traffic from 1987 to 1991. In 1987, the vessels transported 2.1 million passengers and about 1 million vehicles, and in 1991, the traffic volume had increased to 2.6 million passengers and 1.4 million vehicles. The cost of this system, over the same period, increased from $2.1 million to $3.3 million. Some of this increased cost was a result of a decision to run one ferry during the "graveyard" times, 0200 to 0530 hours, where the records indicate that on average only 2.1 vehicles are transported each hour.

There are significant innovations in these vessels, and one of particular note is the natural gas fuel system. The MV KLATAWA was converted to operate on natural gas in 1985. The vessel became the first passenger vessel in Canada to operate on natural gas when she was awarded a passenger certificate by the Canadian Coast Guard. The sister ship MV KULLEET commenced operating on natural gas in 1988. This system has proved worthwhile in that it is cost efficient, easy on the diesel engines, and safe.

OPERATIONS

From an operations perspective both the MV KULLEET and the MV KLATAWA are poorly maintained. Given the volatile nature of the management/labour situation and the ongoing use of auxiliary employees, this removes the benefit that each member of the crew be thoroughly familiar with and competent at their respective duties within the vessel. The problem here also is the repetitive nature of the work tending to induce complacency, together with no leadership. This is especially to be guarded against by making all emergency drills as realistic as possible.

Vehicle Loading and Terminals:

At Albion the parking lot is fairly large accommodating 8 lines of traffic. However, vehicles are parked into lanes with very little regard to size. There is no special treatment given to physically challenged passengers, either to identify them or load them in a way that would allow for them to be easily off loaded in the event that the vessel had to be abandoned. A shore attendant is employed. This attendant assists only; the decision on deployment of traffic is made by the loading officer who communicates by VHF with the attendant. There is no apparent attempt made to restrict the vehicle weights, as it was observed that vehicles well in excess of the posted limits were loaded.

The approaches to the terminal are clear and well defined. There is a need for "speed bumps" to control traffic entering the terminal.

The loading ramp, pilings and pontoon appear to be in good condition, but the maintenance and housekeeping is poor.

At the Fort Langley terminal the approaches are clear and well defined but there is only one lane of traffic, which forms down the highway to the "stop" line on the jetty. This means that sorting out of vehicles by size is impossible and because of this it is not possible to give any special treatment to the physically challenged as noted above.

The loading ramp, pilings and pontoon appear to be in good condition, although the maintenance and housekeeping were poor. The approach trestle has a load limit of 12 tonnes and it is observed that this is often exceeded, and it was noted to move significantly when traffic passed over it.

The signage at both terminals needs significant improvement especially with regard to dangerous goods.

Lighting:

Lighting at both terminals was good.

Pollution:

Neither vessels are equipped with holding tanks for:

(a) Black and grey water: and,
(b) Oily waste.

Effluent is pumped directly over the side into the river. Since the Fraser River is an environmentally sensitive area, it is suggested that the ministry set an example for pollution control. It is noted from the minutes of an old "tool box" meeting that an unutilized fuel tank could be converted to carry out this function and then the effluent can be pumped ashore for proper disposal.

The vessels do not have oily water separators. It is possible for the engine room and bilge oily water to flow into the river and also the drive oil from the Ulstein drives can leak into the river. It is suggested that a bio-degradable vegetable oil be investigated for use in these areas.

Containment Equipment:

At the present time the vessels carry some small absorbent pillows, not sufficient for a medium or major spill and they do not have any system for spill containment.

Certificates and Publications:

The vessels have current SIC 16 certificates from Canadian Coast Guard permitting 100 passengers and crew on the MV KLATAWA, an additional "B" certificate allowing 40 passengers and crew is present. The MV KULLEET, has a similar SIC 16 for normal operation but only a letter from Coast Guard (dated 11 January, 1991) for the "B" certificate.

The potable water certificates for both vessels were posted but **expired** on 31 March, 1992.

On both vessels the ships black book with stability information was readily available.

Only the MV KLATAWA had any semblance of a chart, that being a surveyors run of soundings of the river. Notices to shipping and other relevant marine publications were available. A nautical and engineering library as supplied by the department was ashore in the office at Albion. This is available for reference by the crews but only apparently outside of their normal work hours.

The current draft of the Ministry's Policy and Procedures Manual was **not** available on either vessel.

Engine Room Log books were kept up but only a minimum of information is entered into them, remarks such as "watch keeping duties" being the only comment for a whole shift, showing a lack of interest by the engineers in their role.

A First Aid/Accident Report Book was sighted on both vessels located in the first aid kits.

Navigational Equipment:

Both vessels were fitted with two RAYTHEON RASTARSCAN radars, in good operating condition. These are used in the "heads up" configuration and the officers interviewed were happy with this equipment, especially the newer R81 model.

Both vessels had magnetic compasses, a deviation card was only available for the MV KLATAWA, dated 13 May, 1990.

Communications:

Both vessels have current radio inspection certificates issued but their radio licences expired on March 31, 1992. Both vessels have multi-channel VHF capability, as well as highways frequencies.

Both vessels carried VHF handheld radios.

The PA system on both vessels was good.

Safety Issues:

Examination of the ships logs indicated that emergency drills were being conducted in accordance with the Canada Shipping Act.

Knowledge of the procedures for Fire and Boat Drills was found to be poor, and the additional stress imposed with passengers, "outside" observers and scenario drills has shown great weaknesses in the present system of training. All watches viewed on both of the vessels, carried out the drills inefficiently, with very poor leadership and a noticeable lack of enthusiasm.

There were no check-off lists in place and no proper emergency equipment/fire plans posted. A comprehensive emergency equipment and fire plan should be standard and posted in all vessels in the fleet.

Draft marks were difficult to see on either vessel. It is reported that these marks are difficult to maintain due to running through ice and are not replaced. This is not a recognized seamanship practice. Drafts were not taken daily or entered into the ship's logbook.

SAFETY ISSUES

The vessel is in compliance with all the CSA regulatory requirements. The standard of maintenance and housekeeping, with a few exceptions, was very poor. The additional stress imposed by the outside review committee has helped to bring to light many deficiencies. Tool box meetings are carried out regularly.

EMERGENCY PROCEDURES

Emergency drills were conducted on the two vessels and only on the second occasion were exercised with vehicles and passengers on board. The emergency drills were as follows:

- A man overboard followed by
- Fire in the generator room
- Engineer trapped in a smoke filled pump room
- Bomb threat resulting in an abandon ship.

Other scenarios planned to test the mates ability to take control of the vessel should the master have a heart attack were abandoned because of the poor performance in the previous scenarios.

Fire:

It is difficult to comment on the details of the fire drills carried out because they were so poor that a completely new training program, from the ground up is required.

Skills and scenario type training and drills are highly recommended.

Man Overboard:

The correct whistle and alarm signals were not sounded. Williamson turn was not carried out, but is not required because of the propulsion systems, however despite this advantage in both cases the master turned the wrong way resulting in the MOB (lifebuoy) going through the propellers.

The man overboard drill was in general not efficient. The drills have shown up poor equipment maintenance, poor boat handling and again the need for better training. It was noted that one master did try hard to maintain control from the bridge but had difficulty because of lack of support from the crew.

In general, sight of the man overboard (lifebuoy) was lost due to a lack of spotters.

Abandon Ship:

There was no enthusiasm for the abandon ship drills which were not generally treated as a true-to-life situation. In one case, the passengers were **NOT** mustered at their abandon ship station, given lifejackets or instructed in their use.

The decision to engage in emergency drills during actual operations, while incurring some minor inconvenience, was worthwhile from both a practical and public relations point of view. It especially brought out the point that many of the passengers using the ferry are able-bodied individuals of a practical disposition who are capable of providing support if requested.

Anchoring:

The anchoring arrangements on both vessels were basically the same. The system for deployment is acceptable, but poorly maintained.

Loss of Steering:

Due to the nature of the propulsion system on both vessels, a loss of steering exercise was not carried out and is not necessary.

DECK

The following items need corrective action:

- The hook of the rescue boat should be replaced with a self-release type such as the "MILLS", and the crews must be thoroughly instructed in the use of such a release hook.

- A time check between the wheelhouse and engine room should be implemented at the start of every morning watch.

- Drafts should be taken and recorded in the log at the start of every day.

- Draft marks should be maintained on both vessels.

- **All** steel wire rope viewed in the vessels requires lubrication.

- Supply three UHF handheld radios to each vessel.

- Post emergency plans and fire equipment lists on both vessels.

- Post instructions for donning of lifejackets on outside bulkheads in appropriate places.

- Update muster lists and post in prominent positions.

- Housekeeping should be addressed as a major problem.

- Re-install keys for hatches and void spaces in the brackets fitted.

- Clear access to the escape hatches from the crews mess and ensure that the keys for opening the hatch from above are in place.

- Remove the chains holding the generator room doors open and replace with a self-closing system and magnetic releases.

- Renew all fire station boxes.

ENGINEERING

It is recommended that the following items be corrected:

- Battery isolation switches should be fitted to all starting battery systems and battery cables that are worn through from chafing should be replaced. Proper clamps which will stop this ening should be fitted.

- Self closing valves on all of the gauge glasses should be installed, especially on any tank containing low flash point solvents or fuels.

- Housekeeping should be addressed as a major problem, especially on the MV KLATAWA.

- CO_2 flooding mounted into all engine spaces on both vessels should be clearly marked as to what area is being served, and the exact function.

- Seals on fire doors on both vessels are generally in poor condition and are in need of replacement.

- Replace the seals on the tank covers on a regular basis.

- Install a fire door between the generator room and the pump room.

- Release and lubricate all seized fire dampers.

- Install fire dampers on emergency fire pump intake.

- Install up-to-date eye-wash stations at least in the pump room and crews mess.

CERTIFICATION AND TRAINING

Certification:

Masters, Mates and Engineer Officers employed in these vessels are certified to do their jobs and they do hold the appropriate certification issued by the Canadian Coast Guard.

Training:

A comprehensive training scheme is recommended to be implemented, for all emergency procedures.

A Buoyant Inflatable Rescue Platform (BIRP) should be inflated yearly and all crew members should be present.

Consideration should be given to the MED training of auxiliary employees who have served for more than one year.

A review and debriefing of the crews by an outside audit team of the emergency procedures and equipment should be instituted on a **regular** basis.

Consideration should be given in the handling of the physically challenged.

CONCLUSION

The licenced operation at Albion was by far the worst viewed and most in need of corrective action and attention by the immediate managers. There was a general lack of interest and apathy displayed and, in the committee's opinion, is due to a lack of leadership.

RECOMMENDATIONS

The deficiencies noted in this report should be rectified.

FRANCOIS LAKE
INSPECTION OF MV OMINECA PRINCESS
(LICENCED FERRY)
18-20 AUGUST, 1992

INTRODUCTION

The MV OMINECA PRINCESS operates across Francois Lake, approximately 25 km (16 miles) south of Burns Lake on Highway 35, between Southbank and the community of Francois Lake. This is a single service ferry with a capacity of 32 vehicles and 200 passengers. The ferry operates daily from 0520 to 0030, departing about every 50 - 60 minutes, and on-call for emergencies. The transit time between terminals is approximately 15 minutes.

The ferry system is self contained and this includes the OMINECA PRINCESS, which is the business vessel; a tug and barge; floating drydock; a small barge capable of carrying a crane; an air bubble system at both terminals, dry dock area and tug berth; two parking lots; a storage facility; and, one crew house at Southbank.

The operational limitations are minimal since the OMINECA PRINCESS is a 52.8 metre (192 feet), twin screw, ice strengthened certified vessel, and with the air bubble system at the terminals, allows the vessel to operate throughout the year. The tug and barge are used when the vessel is out of service for refit or major repairs.

In 1986/87, the vessel transported 341,941 passengers and 166,104 vehicles, for a daily average of 455 vehicles and 937 passengers. In that year, 81% of the traffic was automobiles and 4% was logging trucks. In 1990/91, the vessel transported 326,590 passengers and 163,344 vehicles. It is apparent from these statistics that in the last five years the traffic pattern has remained relatively constant. The cost for this system, over the same period, has increased from $1,430,615 to $1,731,453.

OPERATIONS

From an operations perspective the OMINECA PRINCESS is well run and maintained. Given the static nature of the personnel situation, this provides the benefit that each member of the crew should be thoroughly familiar with and competent at their respective duties within the vessel. The offset here is the problem of monitoring and repetitiveness inducing complacency. This is especially to be guarded against in ensuring that correct vehicle loading and unloading procedures are followed and that Fire and Boat Drills are as realistic as possible.

Vehicle Loading and Terminals

Francois Lake Terminal: There is signage for five lanes of traffic with traffic control lights. Loading is done on a strictly first-come first-served basis. There is no dangerous goods signage at the entrance to the terminal, and the signage for closing off propane tanks can only be seen when boarding the vessel and this is too late.

There is no special treatment given to physically challenged passengers, either to identify them or to load them in a way that would allow for easy off loading in the event the vessel had to be abandoned. Loading of vehicles is done by either the Mate or the Deckhand.

Although not critical on the Northbank, there is no "runaway" lane for heavy vehicles. Loaded logging trucks weigh about 50-60 tons, but on the Northbank these vehicles are mostly empty and carrying their own axles. Consideration should be given to this requirement, as vehicles do slow down or stop before turning into the terminal, and a runaway truck could cause a serious accident.

Dock and ramp maintenance is contracted out and appears acceptable. Some capital changes to either the vessel or ramp are required to compensate for the vessel's built-in list. At the present time, a temporary wooden ramp on deck is used to correct this situation.

A bubble machine (compressor) is used to keep the terminal clear of ice during the winter. The machinery appears well maintained with all valves clearly marked as to which areas they serve. A detailed log of maintenance and operation is kept inside the housing: last entry was 13 February, 1992.

Southbank Terminal: There is signage for five lanes of traffic, one clearly marked for dangerous goods, again no provision is made for the physically challenged.

The clearance procedure requires immediate attention. From observation it was noted that a proper loading procedure is not followed. The Mate does not inform the Master that he has completed the loading and that the vessel has been secured and is safe to depart the berth. The Mate and Master do not use the "walkie-talkies" provided for this important report, nor does the Mate use the talk-back unit provided at the loading station to convey this message. Although the Master has a commanding view of the loading area, it was observed on one occasion that a large "hay" truck obscured the loading area, and the Master started to manoeuvre the vessel away from the berth without confirming that he was clear to do so. A letter, dated 20 August, 1992, has been forwarded to the District Marine Manager on this subject recommending immediate corrective action.

At Southbank/Northbank the vessel is berthed in such fashion that the apron has a considerable overhang onto the vessel. This means that the Deckhand must secure the gates either after the vessel begins to depart the berth or under the edge of the apron. This item has been recorded in the minutes of the Tool Box Safety meeting dated 24 August, 1992. **This is a dangerous situation that must be corrected in order to avert serious injury to deck personnel.**

The approach to the terminal and vessel loading area is very steep, and although there is a "runaway" lane of sorts for the loaded logging trucks, it is not properly identified, and **is located on the wrong side of the road**. A loaded logging truck losing its brakes can either use the cross-over lane or continue down into the loading area or veer right into the passenger shore lounge. **This is a serious situation that requires immediate attention from the appropriate authorities. In addition, the Attorney General should be requested to have the Commercial Vehicle Inspection Branch conduct regular brake, mechanical and securing arrangements inspections on these vehicles. Southbank has had serious accidents and a similar accident at the BC Ferry Terminal, Horseshoe Bay, resulted in fatalities.**

A bubble machine (compressor) is used to keep the terminal clear of ice during the winter. The machinery appears well maintained with all valves clearly marked as to which areas they serve. A detailed log of maintenance and operation is kept inside the housing.

All facilities appear to be well maintained.

There is a tug KEEFE and a barge JACOB HENKEL secured here. This equipment is used:

(a) Every five years during the refit of the OMINECA PRINCESS.

(b) The tug is used for manoeuvring and assisting the OMINECA PRINCESS should engine failure occur.

It is noted that before this equipment is placed into service it is inspected and approved by the Canadian Coast Guard. Although it is noted that the regulations have been contravened, and the barge was pressed into service without the proper inspection and authorization. **Management must ensure that this type of oversight does not occur in the future.**

Although there is some vandalism, serious damage is prevented to the vessel and infrastructure because security rounds are conducted by the duty crewman during the silent hours.

Lighting:

Jetties have sodium lighting to assist in low visibility. Ongoing experiments are taking place to try and improve the terminal lighting, e.g. a high power strobe light controlled from the deck.

Pollution:

The vessel is equipped with holding tanks for:
(a) Black and grey water; and,
(b) Oily waste.

The Black water is pumped out approximately every other day to a holding tank located in Southbank and once full, automatically pumps to a large septic field. In the event of any unforeseen problems, for example excessive cold weather, there is a tanker (honey wagon) service available.

The engine room and bilge oily water is removed under contract to Mohawk Oil Company. On board is an oil record book which is kept up-to-date.

Containment Equipment:

An adequate amount of pads, booms and related equipment is carried on board to contain minor spills. However, sufficient materials for a major spill are readily available in storage ashore.

Certificates and Publications:

The potable water certificate issued by Health and Welfare Canada in Prince George, expired 3 April, 1992. Investigation revealed that both the District Marine Manager and the Chief Engineer Officer were aware of positive results of recent tests and that a new certificate was expected imminently. Water from the lake is tested twice yearly.

The Ship's Black Book with the stability information was readily available, and it was noted that a new inclining experiment was to be carried out after refit.

The Ministry's Policy and Procedures manual was available on board. The copy viewed had been changed to reflect current usage. Some data was outdated. Local orders were interspersed with the Policies and Procedures making the reading of the publication difficult. It is recommended that local standing orders form an addendum to the main Policy and Procedures manual.

There were no hydrographic charts available for this lake. Notices to Shipping and all other relevant marine publications were available, together with an up-to-date comprehensive nautical and engineering library.

Navigational Equipment:

The vessel is fitted with two RAYTHEON R73 RASTARSCAN. Both are in good operating condition. These are used in the "heads up" configuration, and Masters interviewed were happy with the equipment.

To complement these, the vessel carries a RAYNAV .550 LORAN C which gave excellent results. Unfortunately, apart from one Máster with a working knowledge of the set, the others did not know how to use it. This should be rectified by an appropriate training session.

The OMINECA PRINCESS has a suitable magnetic compass together with a spare. No deviation card was available and the compass had not been adjusted for many years. Further, the Masters did not know the variation for the area.

Communications:

The vessel has a Department of Highways frequency radio only, a Babine Logging Company VHF, two hand-held CB radios, and a BC Radio Telephone (called a rural telephone). The in-ship talkback system did not work well.

The vessel's public address system was poor and was not connected for use as an address system for the car deck. This system should be rectified, as apart from a hand-held "bull horn", it is the only way passengers can be apprised quickly of an emergency.

The Emergency boat's VHF radio was not working during the first man overboard exercise, but it was repaired for the subsequent drill.

SAFETY ISSUES

Examination of the Ship's Log indicated that fire and boat drills were being conducted in accordance with the Canada Shipping Act, "Boat and Fire Drill Regulations."

The vessel has an innovative method of stowing the breathing apparatus and the fire suit, geared for rapid deployment. This system should be incorporated fleet wide, with appropriate modifications to suit the class of vessel. In addition, the signal cards for the attendants are posted in the proper places, wheelhouse, crew room, and on the breathing apparatus lockers.

The District Marine Manager has instituted an orientation check list which is designed to provide two basic important functions: first, to give crew members a comprehensive knowledge of the vessel's layout and safety equipment; and second, to provide an accurate status report of the vessel's safety and emergency equipment in accordance with the Canada Shipping Act and pertinent Regulations. The check list includes all the departments within the vessel and the "watch month routine emergency drills." To do the check list requires a "vessel walkabout", and means that crew members are continually familiarizing themselves with the vessel and everything that is in her. It is an excellent training and familiarization vehicle and should be used fleet wide.

An Emergency Equipment and Fire Plan is posted outside of the crew room. This Plan shows the location of all the emergency equipment, outlets and stations. These were checked and found to be correct and the equipment well maintained. This type of Plan should be standard in all the vessels in the fleet.

Vessel's draft marks are present, but drafts are not recorded as required in the Policy and Procedures Manual.

EMERGENCY PROCEDURES

The emergency drills were conducted in the vessel on two occasions, during the day and at civil twilight. On both occasions, the drills were conducted with vehicles and passengers on board. The emergency drills were as follows:

- Fire and smoke in the emergency generator room, with one person trapped in that space
- Fire spreading to the engine room
- Man overboard
- Master incapacitated, and
- Abandon ship.

Fire:

In general incorrect whistle and alarm signals were sounded and verbal instructions were unclear and there was not a sense of urgency with respect to the emergency. There is a need for an emergency procedures card system by which the Master can make quick reference for the correct procedure to be followed. Further, there is a need to modify the public address system in order that there is a feed to the car deck.

First response to the fire drill scenario was found to be excellent. The crews carried out the correct procedures for use of the extinguishers, hoses, CO_2 systems and crowd control. Upon the introduction of a second and more complex scenario, the lack of clear leadership resulted in confusion. On both occasions, fire fighting crews failed to ensure that ventilation flaps/ducts

were closed in the generator room. Further scenario type training and drills is recommended. The added stress brought on by an outside review and inspection committee may have contributed to some of the problems, but equally this has served to show up weaknesses in training and "on-scene" direction.

There were no reports from the "on-scene" commander to the Master in the wheelhouse, and this left the Master in an untenable position as to what was occurring at the scene of action. It is appreciated that the "on-scene" commander is very busy in an emergency situation, but the use of a portable UHF radio would have kept the Master apprised of the situation and would have forestalled precipitous action as occurred in one instance where the Master went to abandon ship without really knowing what was occurring at the action scene.

Man Overboard:

In general incorrect whistle and alarm signals were sounded and verbal instructions were unclear and did not generate a sense of urgency.

The crews treatment of the man overboard drills was enthusiastic. The location was marked quickly and efficiently and very little time was lost between the order to go from fire stations to the order to deploy the HURRICANE. In the first exercise, due to over enthusiasm, a near mishap was averted by the intervention of a team member. Multiple scenarios, one of which was a simulated heart attack to the captain, resulted in loss of communication and direction to the crew.

In both man overboard drills, the Master failed to manoeuvre the ship in order to close the HURRICANE. The Master during this drill at civil twilight indicated after the HURRICANE had been dispatched that he would have done a "Williamson Turn", a most appropriate action, but he did not do it. Emergency drills must include appropriate action, considered safe by the Master, and these must be practised.

The procedure for launching, inflating and loading the buoyant inflatable rescue platforms should be reviewed so as to ensure the most expeditious method of disembarking passengers. With this in mind, the relocation of one of the platforms on the generator space house top should be reconsidered and possibly located to a more convenient position on the car deck. The procedure should be clear to all crew and it should be a feature in the weekly Fire and Boat drill.

All officers and crew should be clear as to the difference between inflatable liferafts and inflatable platforms. Whilst on this point, some thought should be given to the length of the painter required for this operation. Normally, 30 metres is provided, but with freeboards involved this could be reduced in length if this is considered advantageous.

Regarding the Safe Working Load of the Boat Davit, the Life Saving Equipment Regulations require that this be clearly marked on the davit. It was noted that it was stamped on the davit winch. The load test applied is 2.2 times the working load and this may be established by reference to the manufacturer's documentation.

The use of "Mustang Cruiser Suits" protection for the boat party in the event of operations in cold weather, is an excellent initiative and should be considered for use throughout the fleet.

The decision to engage in emergency drills during actual operations, while incurring some minor inconvenience, was worthwhile from both a practical and public relations point of view. It especially brought out the point that many of the passengers using the ferry are able bodied individuals of a practical disposition who are capable of providing support if requested.

The use of the portable air motor to lift the HURRICANE clear of the chocks is expedient, but should be discouraged during launching operations. There is little margin for error since there is no limit switch. The air unit is an excellent example of the innovative features which have been developed by the crew. It obviates the "donkey work" associated with recovering and stowing the boat after an exercise, but hand operation of the winch in launching would avert a possible serious accident.

The boat davit in the first man overboard drill was insufficiently turned outboard such that the boat fouled the rubbing strake during descent, again to the detriment of the boat crew. A telltale mark on the slewing gear would assist.

In the same instance, the speed of descent, whilst perhaps being difficult to regulate, should be considered when operating the winch brake. The descent was too fast and a gradual descent would have been better than the shock loads which arise from starting and stopping. This should be addressed during the drills. On the second man overboard drill, the air motor was not used for launching, the davit was properly swung out (90°), and the boat was lowered by hand in a controlled fashion.

Abandon Ship:

There was continued enthusiasm for the abandon ship drills. It was treated as a true to life situation. In one case, the team was informed of the procedures that would take place for passenger control. In the second case, all of the passengers were actually mustered at their abandon ship station, given lifejackets and instructed in their use, briefed on what would be required of them, and then briefed on the deployment of the BIRP. The crew involved should be commended on this portion of the drill. Unfortunately, this being the end of the drills, the Master cut-off the explanation even though the crewman had not finished. Two-way communications with the Master would solve a considerable number of control problems.

As indicated previously, during the second fire scenario when the fire had spread to the engine room, the Master on receiving this report, went immediately to abandon ship, not waiting for a full report from the "on-scene" commander. In essence, his command to abandon ship stopped any further action to save the ship. Without having a full appreciation for what was occurring below the wheelhouse, this action was precipitous, and could have been avoided with a better interrelationship with his "on-scene" commander, and a means to communicate effectively.

Anchoring:

Verbal questioning of the crew on procedures and inspection condition of equipment indicated that an exercise was not required.

Loss of Steering:

This exercise was conducted on leaving the Southbank berth during the second set of drills. All steering control was made a casualty, and the Master was told to use his engines for manoeuvring the vessel. This was not well done, and the Master remarked that this was the first time that this exercise has ever been conducted. It is recommended that exercises of this nature be conducted at regular intervals.

DECK

The following items need corrective action:

- A time check between wheelhouse and engine room should be implemented at the start of every "morning watch".

- Forward end passenger lounge fire door should self-close and be fitted with a magnetic release similar to the midship door.

- A safe working load should be stencilled on the rescue boat davit.

- Fire door in crew room should have a magnetic release.

- All steel wire rope viewed in the vessel requires lubrication.

- Full compliance with the Worker's Compensation Board letter dated 18 February, 1985, should be enforced. This refers to "Ferry Traffic Control Wearing Apparel", and specifically to distinguishing reflective arm bands, flagman's vests, and distinguishing red flashlights during the hours of darkness.

- Training and practice in vessel operation by engine room control telegraphs should be implemented weekly.

ENGINEERING

It is recommended that the following items be corrected:

- Self-closing valves on all oil tank gauge glasses should be installed. The solvent holding tank in the engine room should be done as soon as possible. "Varsol" should be stored in bulk in the machinery space.

- CO_2 flooding should be installed in the emergency generator/pump room.

- A self-closing hatch cover with fusible link should be fitted to the main access to the steering gear compartment.

- More precise and better understood communications for abandoning the engine room are required.

- Fire door to the main engine room should be self-closing, have a magnetic release fitted, and the fireproof seals renewed.

CERTIFICATION AND TRAINING

Certification:

Masters, Mates and engineer officers employed in the OMINECA PRINCESS are certified to do their jobs and they do hold the appropriate certification issued by the Canadian Coast Guard.

The District Marine Manager takes the training of his crews seriously, and that there is a very high level of certification within his group. This is being confirmed by a certification and training report requested from all units within the Inland Ferry system.

Training:

Although the crews in the OMINECA PRINCESS appear to be relatively well trained, there is still a need for an in-house training system with set standards for operations, engineering and emergency procedures/drills. This should be done by a team from outside the Inland Ferry system, with direction to audit the vessels and the terminals in delineated drills to ensure the safety and efficiency of the entire system. This team should be charged with debriefing the

crews, and in making a report to senior management on the audit, along with the action taken to correct errors and defects. Further, the team should be used system wide, in order to ensure that all licenced vessels conform to a common recognized standard of operating procedures.

If at all possible, passengers should be included in the emergency drills as appropriate to the conditions. The drills done at Francois Lake were with passengers and vehicles on board, and the passengers were most cooperative and understanding. In fact, many were impressed with the excellent professional response to the scenarios by the crewmen. With this in mind, this builds confidence in the crewmen and assures the public that they are indeed safe in this ferry system.

CONCLUSIONS

The vessel is in compliance with all the CSA regulatory requirements. The enthusiasm of the crews has resulted in additional well thought out safety equipment being available and easily deployed. The standard of maintenance and housekeeping was impressive and obviously has led to the enthusiastic responses and innovations. The additional stress imposed by the outside review committee has helped to bring to light some deficiencies.

The level of leadership exhibited by the District Marine Manager and the Chief Engineer Officer is exemplary. This is supported by such documents as: daily, weekly and monthly routine sheets; safety check lists; ship employee orientation manuals; etc. There is full compliance with the Policy and Procedures Manual in carrying out Tool Box, Operations and Management meetings with full employee participation. Most important, all exercises are debriefed expeditiously.

RECOMMENDATIONS

Proper and concise procedures for clearance to sail should be instituted immediately. A "runaway" lane at Southbank that is clear of traffic and passengers must be installed immediately. Further, commercial vehicle inspections are required to ensure that heavily loaded vehicles conform to brake checks, and are in good mechanical condition.

An alteration must be made to the vessel or the terminal loading apron at Southbank/Northbank to ensure that securing for vessel departure is a safe procedure for the personnel on deck.

The hook for the HURRICANE rescue boat should be replaced with a self-release type such as the "Mills", and the crews must be thoroughly instructed in the use of such a release hook.

The arrangement of the outboard funnel uptake shut off flap is a classic example of one measure creating another safety hazard. In this case, the flap and holding levers project out into the walkway such that personnel can run into same particularly during dark or emergency operations.

More conspicuous signage is required for dangerous goods and propane tanks at both terminals.

Management must ensure that when the tug and barge are to be used there is a proper inspection and certification before use.

Local orders should be kept separate or as an addendum to the Policy and Procedures Manual.

Masters and Mates require a training session on the use of the RAYNAV .550 LORAN C.

The vessel's public address system requires modification to ensure that the car deck is included in the annunciation envelope.

Masters and Mates require a course in command such as MED D, and an emergency procedures card system for quick reference in an emergency situation.

Masters and Mates must work as a team, and use all available communications within the ship to ensure that proper and timely reports are made and vital information is exchanged in an emergency situation. Masters should allow their Mates to act in command for emergency exercises.

The review by an outside audit team of emergency procedures and equipment should be instituted on a regular basis.

Items as given in the Deck and Engineering sections of this report should be taken for action.

The addition of another BIRP to ensure sufficient flotation equipment for the certificate, or the certificate should be reduced to 150 people.

The BIRP above the generator room should be moved to a more advantageous position for passengers.

Drafts of the vessel should be checked daily and entered in the ship's log, as required by the Policy and Procedures Manual.

Additional training in the use of the TRAUMA equipment is required, particularly the inclusion of instructions and the exclusion depending on First Aid training of those that are not allowed to use some of the items contained in the kit.

A plan should be developed to implement systems to ensure the safety of the physically challenged within the very near future.

Attention should be given to the comments in the Safety Issues section of the report, and corrective action instituted.

APPENDIX 6

UPPER ARROW LAKE FERRY INSPECTION
(LICENCED FERRIES)
15-16 SEPTEMBER, 1992

INTRODUCTION

The Diesel Electric Vessel (DEV) GALENA and MV SHELTER BAY operate on the Upper Arrow Lake on Highway 23 between Shelter Bay and Galena Bay. Shelter Bay is 50 km (31 miles) south of Revelstoke, while Galena Bay is 47 km (29 miles) north of Nakusp.

The DEV GALENA has a capacity of 50 automobiles, and the MV SHELTER BAY has a capacity of 28 automobiles, and both carry 150 passengers and crew. The DEV GALENA operates year round, and the MV SHELTER BAY operates from June to mid-September only. The distance between docks is 5 km and the crossing time is about 23 minutes.

For DEV GALENA, the service is 20 hours per day, on an hourly departure schedule from 0500 to 0030 hours; and, for MV SHELTER BAY, the schedule during the summer months is from 0930 to 1800 hours, and in this time period the vessel makes 9 return trips. On Tuesdays and Thursdays, the 0900, 0930, 1400 and 1430 hours sailings are reserved for fuel and dangerous cargo and no passengers are allowed on these sailings.

The infrastructure besides the vessels, includes two concrete ramps (about 500 feet long), a crewhouse, marine railway and a power house (3 generators); and on the Galena Bay side it includes one generator and a small terminal.

There are no viable alternate routes. The alternate route from Revelstoke to Galena Bay and Trout Lake area would be via Vernon, Needles (Fauquier) and Nakusp, a total of 250 km (156 miles on Highway 6 and 23).

In 1986/87, the DEV GALENA carried 266,643 passengers and 121,732 vehicles at a cost of $1,370,400; and in 1991/92, the two vessels carried 386,883 passengers and 182,069 vehicles at a cost of $2,616,922.

OPERATIONS

From an operations perspective the DEV GALENA and the MV SHELTER BAY are well run and maintained. Since crews have a shift of two weeks on and two weeks off, and the majority stay in the crewhouse during their shift period, the static nature of this personnel situation provides the benefit that each member of the crew should be thoroughly familiar with and competent at their respective duties within the vessel. The problem here is the repetitive nature

of the work tending to induce complacency. This is especially to be guarded against by making the emergency drills as realistic as possible, followed by detailed briefings, and if needed individual training in emergency equipment.

Vehicle Loading and Terminals:

Shelter Bay: At the turn-off from the main highway, in Revelstoke, some 50 km before the terminal, there is a clearly marked sign showing the ferry schedule, the load limitations, fuel restrictions, and the dedicated dangerous cargo sailings. At the terminal, there is signage for one lane of traffic with a radio controlled barrier and flashing light. It has been reported that the radio controlled barrier does not work in extreme temperatures and this situation should be investigated. Loading is done on a strictly first come-first served basis. There is good signage for dangerous goods and a notation for propane tankers, along with a ferry schedule.

There is no special treatment given to physically challenged passengers, either to identify them or load them in a way that would allow for them to be easily off-loaded in the event that the vessel had to be abandoned.

The loading of vehicles is done by either the mate or the deckhand and, when viewed, was efficient. During the summer season when heavy traffic conditions prevail, two terminal attendants are hired to assist, and are used at either terminal depending on traffic density. The decision on deployment of the terminal attendants is made by the loading officer.

The approaches to the terminal are clear and well defined.

The loading ramp (wedge) appears to be in good condition, however, the instructions regarding the ballast and operation of the floating section are not adhered to. The normal operating condition of the wedge is with the pontoon section having positive buoyancy, and therefore when the wedge must be repositioned, because of the 50 plus foot change in the level of the lake, it can be pushed or pulled by the vessels. When viewed, the wedge was sitting hard on the surface of the concrete ramp and it took considerable effort for the vessels to move it and this resulted in it being scraped along the bottom. Over a period of time, this will result in early failure of the pontoon.

Prior to the two ship operation, the DEV GALENA berthed on the concrete ramp, and this method of berthing was most convenient and safe, since there was no need for a wedge. Wedges were installed to accommodate the MV SHELTER BAY and the DEV GALENA was modified to fit this operation. The system is not favoured by the crews since, by comparison with the ease of berthing with the old system, the wedges are more difficult to maintain, have broken away during severe storms, and require constant vigilance during docking periods.

The winters in this region are severe and frequent freezing of the lake, along with heavy snow fall, causes the wedges to ice up to a point where it could be unsafe to operate. It is reported that the private contractor who is responsible for snow removal is not always available, and this means that the crews must remove the ice and snow. It is recommended that a further investigation of the operation and maintenance of the wedges and approaches take place in winter. In the meantime, the crews should be directed to follow the operating procedures for the wedges.

In the event of the lake freezing over, a crew change, from a ten hour day to a twelve hour day is required, in order to run the vessel continuously to maintain a clear channel. It is not unusual to have ice up to two feet thick on the lake.

There is only a limited amount of diesel generated electrical power available at this remote location.

The concrete approach ramp is approximately 600 feet long and 100 feet wide, with a marine railway to allow dry-docking of the vessels for refit.

Galena Bay: The signage at this terminal is the same as that at Shelter Bay. It was noted that the lighting at this terminal is poor, and this should be corrected.

Runaway lane: The approach to the Galena Bay terminal is via a long steep road which starts at the Trout Lake turn-off. About a mile from the terminal, there is a runaway lane, built in a circle, and in the summer, drivers disregard the runaway lane sign and park in this area. It should be noted, that one lane of the two lane highway is used to line up for the ferry, and in the heavy traffic periods, the line up is past the runaway lane. This means that a runaway vehicle must use the approaching traffic lane and cut across the vehicles lined up for the ferry to get into the runaway lane. This situation has the potential for a serious incident, and it is recommended that some thought be given to rectifying this situation.

There is a brake testing station at Trout Lake, and the Provincial Vehicle Inspection Branch conducts periodic inspections on vehicles in the vicinity of Revelstoke and Nakusp.

Pollution:

Both vessels are equipped with holding tanks for black/grey water and for oily waste. The black water is treated on the vessel by aerating and the addition of appropriate chemicals. It is then discharged into the lake.

Even though the vessels have operational oily water separators, the engine room and bilge oily water is removed under contract in 45 gallon drums.

Containment Equipment:

There is no oil spill containment equipment or supplies evident on either vessel or ashore.

Certificates and Publications:

DEV GALENA has a current SIC 16 licences from the Canadian Coast Guard permitting 205 passengers and crew. However, the flotation equipment on board is only sufficient for 157 persons. There is a directive from the Marine Manager restricting the number of passengers to 145 in these vessels.

The potable water certificate was posted and up-to-date.

On both vessels the ships black book with stability and surveys was readily available. However, these books do not contain copies of the test certificates for lifeboat davits.

Both vessels carry a new and up-to-date folio of hydrographic charts for the lake (published in June, 1991). Notices to shipping and other relevant marine publications are available together with a current nautical and engineering library.

The current draft of the Ministry's Policy and Procedures Manual was **not** available on either vessel, both vessels had old and incomplete versions.

Engine Room Log books were kept for spare parts inventory, repairs and maintenance, and operations.

A First Aid/Accident Report Book was sighted on the GALENA but not on the SHELTER BAY.

Navigational Equipment:

Both vessels were fitted with RAYTHEON R73 RASTARSCAN radars. All are in good condition. These are used in the "heads up" configuration and the officers interviewed were happy with this equipment.

Both vessels had magnetic compasses available, but these are not used because they are adversely affected by the type of traffic carried. The compasses are kept in boxes, out of the way, and because of this they have not been adjusted for many years and no deviation cards were available. It is recommended that consideration be given to the installation of a Gyro Compass with radar interfacing. This is important since visibility is restricted on many occasions during the winter months.

Communications:

Both vessels have a Department of Highways frequency radio. In addition, GALENA has a BC Tel telephone. It is recommended that the SHELTER BAY be fitted with a BC Tel telephone.

Neither vessel carried any VHF or UHF handheld radios which resulted in no communications being available to the vessels emergency rescue boat when deployed.

The hand powered telephone and PA system in the GALENA were very poor and these systems should be repaired and/or upgraded as soon as possible.

SAFETY ISSUES

Examination of the ships logs indicated that emergency drills were being conducted in accordance with the Canada Shipping Act and other pertinent regulations and directives.

Knowledge of the procedures for Fire and Boat Drills was found to be relatively good. However, the additional stress imposed with passengers, "outside" observers and scenario drills has shown weaknesses in the present system of training.

There were no check-off lists in place and no proper emergency equipment/fire plans posted, although it was noted that on the SHELTER BAY a hand drawn fire equipment plan was posted in the crew room, and that instructions for fighting a vehicle fire were in the wheelhouse. A comprehensive emergency equipment and fire plan should be standard and posted in all vessels in the fleet.

Draft marks were visible on the SHELTER BAY but not on the GALENA. Although both vessels carried "ullage sticks" these were not used and drafts were not taken daily or entered into the ship's log.

EMERGENCY PROCEDURES

Emergency drills were conducted in the two vessels and on both occasions were exercised with vehicles and passengers on board. The emergency drills were as follows:

- A fire in the propane system of a camper/motor home, followed by
- The engineer trapped and injured in the smoke filled engine room
- Once the engineer was rescued, the fire had intensified requiring the CO_2 system to be employed, and then to

- A man overboard and Abandon ship scenario
- Finally, a scenario incapacitating the master, which required first aid, and the mate to assume command.

Fire:

In general, incorrect whistle and alarm signals were sounded and verbal instructions from the master were unclear and did not generate a sense of urgency. There is a need for an emergency procedures card system by which the master can make quick reference for the correct procedure to be followed. Further, in the GALENA there is a need to improve the PA system in order for announcements to be heard on the car deck and within the vessel.

First response to the fire drill scenario was found to be good, the crews carried out the correct procedure for use of the extinguishers, hoses, and crowd control. Upon the introduction of a second and more complex scenario, the lack of clear leadership and malfunction of the SCBA (both vessels) resulted in confusion and the use of some unsafe practices. Reports from the on-scene commander to the master were poor. Further scenario type training and drills are recommended.

Man Overboard:

The correct whistle signal was sounded and, because of the configuration and propulsion system of the vessel, the correct manoeuvre was made. (Williamson turn is not required because of the VSP propulsion system).

SHELTER BAY man overboard drill was in general efficient.

The drill in the GALENA has shown up poor equipment maintenance, poor boat handling and again the need for training. The incorrect position of the gravity brake and drive crank has resulted in an unsafe position for the operator and should be rectified immediately.

Consideration should be given to replacing the davit system now in the vessels with the type that is installed in the NEEDLES. Freeboard could be a problem, but it is felt that this is not insurmountable, and a system such as the NEEDLES would relieve needed crewmen to other duties. If this is not possible, then the rescue boat davit should be fitted with a motorized winch.

In both cases, sight of the man overboard (lifebuoy) was lost by the rescue boat crew and no instructions for a spotter to be posted were given. This could have been ameliorated by having a radio in the boat.

Abandon Ship:

There was good enthusiasm for the abandon ship drills which were treated as a true-to-life situation. In both cases, all the passengers were actually mustered at their abandon ship station, given lifejackets and instructed in their use, briefed on what would be required of them, and on the deployment of the BIRP.

The novel deployment of the sister ship in the assistance for abandon ship by mating bow on bow was particularly impressive, and earned the master of the SHELTER BAY a "Bravo Zulu" (well done).

All officers and crew should be clear as to the difference between inflatable life rafts and inflatable platforms. Whilst on this point, it is noted that the painters on the BEAUFORT inflatable platforms have been reduced in length to 30 feet. With the freeboards involved, this is considered prudent.

The decision to engage in emergency drills during actual operations, while incurring some minor inconvenience, was worthwhile from both a practical and public relations point of view. It especially brought out the point that many of the passengers using the ferry are able bodied individuals of a practical disposition who are capable of providing support, if requested.

Anchoring:

The SHELTER BAY exercised its anchor without any complications. The GALENA uses its anchor regularly for securing at night and it was not considered necessary to carry out a test. It was noted that the wire cable was showing signs of wear, and consideration should be given to exchanging this cable with the one from the other end of the vessel. In both vessels all cables, davit wires and rollers required lubrication.

Loss of Steering:

Due to the nature of the propulsion system of the vessel, a loss of steering exercise was not carried out. However, on one of the scenarios a mate was required to steer the vessel using only one of the propulsion units. The emergency (electric) steering system on the GALENA had been removed for repair and has not been replaced.

Loading Procedures:

It is noted that the Loading Officers in these vessels use a secured for passage procedure, and this includes a hand signal to the master and a buzzer signal which sounds in the wheelhouse. Although the master has a good view of the loading area, it is considered that inattention or a distraction could draw the master's attention away from this most important evolution. The hand signal could be missed, and anyone on deck could press the buzzer inadvertently. The

GALENA has sound powered phones at both ends of the vessel in the loading area, but these are not used. The SHELTER BAY has a buzzer system, but no sound powered phones. It is recommended that this system of communications be corrected, in that the vessel should not depart the berth until the master receives and acknowledges a proper report from the Loading Officer that the ship is in all respects ready to proceed. The SHELTER BAY should be fitted with a sound powered phone system, similar to that in the GALENA.

DECK

The following items need corrective action:

- The Ministry Directive for the number of passengers to be carried should be posted in the wheelhouse, crew room and passenger lounge. The current Inspection Certificate for number of passengers allowed does not match the flotation equipment now carried.

- The hook of the rescue boat should be replaced with a self-release type such as the "MILLS", and the crews must be thoroughly instructed in the use of such a release hook.

- A time check between the wheelhouse and engine room should be implemented at the start of every morning watch.

- Drafts should be taken and recorded in the log at the start of every day.

- Draft marks should be clearly identified on the GALENA.

- **All** steel wire rope viewed in the vessels requires lubrication.

- Install Gyro compass on both vessels, with radar interface.

- Install BC Tel radiotelephone on SHELTER BAY.

- Supply three UHF handheld radios to each vessel.

- Upgrade the PA system in the GALENA.

- Install sound powered phones at the loading positions in the SHELTER BAY.

- Post instructions for donning of lifejackets and emergency procedures for passengers on the outside bulkheads in appropriate places.

- Rectify the crank/brake position on the davit control in both vessels. Consider replacing the rescue boat davit system with a similar one as installed in the NEEDLES. If this is not practical, then a motorized winch should be installed.

- Improve housekeeping in the locker housing the standby SCBA in the SHELTER BAY.

ENGINEERING

It is recommended that the following items be corrected:

- Self closing valves on all of the oil tank gauge glasses should be installed.

- The diesel fuelling line on the deck of the GALENA should be clearly marked and have an appropriate fire extinguisher mounted at this location.

- The CO_2 flooding sign mounted in the emergency generator room in the GALENA should be marked as to what area it serves.

- The existing fusible links holding engine room and other doors open should be replaced with a magnetic retainer, operated from the bridge and one other location outside of the engine room.

- More reliable and precise communication between the engine room and wheelhouse should be established.

- Re-install the emergency steering system in the GALENA.

- Unnecessary clutter in the "storage wings" in the GALENA should be tidied up.

- An emergency escape from the engine control room should be installed in the GALENA.

- The teak door to the emergency generator room should be replaced by a recognized fire door.

- Install a safety chain over the ladder access to the engine room in the GALENA.

- Install proper eye-wash stations in both engine rooms.

- Lock back devices should be fitted to every deck hatch when open.

- Escape hatches throughout the vessels should be in good working condition and easy to open.

- The localized shell plating vibration problem noted during the inspection has since been corrected by additional stiffening modifications.

CERTIFICATION AND TRAINING

Certification:

Masters, Mates and Engineer Officers employed in these vessels are certified to do their jobs and they do hold the appropriate certification issued by the Canadian Coast Guard.

The night shift Oiler works from 0100 to 1100 hours, but from 0500 to 1100 hours he is used to assist the deckhands and as a "gofer" for obtaining supplies which requires driving a vehicle. This is not a good utilization of a trained technical person, and after a night watch it is unsafe practice to use him to drive for supplies. This situation should be addressed.

Training:

Appropriate training and instruction to be given to all crew members for the safe and efficient operation of the loading wedges (ramp).

All engineers and oilers should be trained properly in the use of both types of the five minute breathing apparatus fitted in the vessels.

A BIRP should be inflated yearly and all crew members should be present.

Consideration should be given to the MED training of auxiliary employees who have served for more than one year.

A review and debriefing of the crews by an outside audit team of the emergency procedures and equipment should be instituted on a **regular** basis.

Consideration should be given in the handling of the physically challenged.

Masters/Mates require the command and control course, MED D.

A proper orientation course is required for new employees, along with a detailed syllabus and an on-the-job record.

The deckhand's training syllabus, as previously used, should be re-instituted, along with a record of accomplishment. A review should be required annually.

CONCLUSION

These vessels are in compliance with all the Canada Shipping Act regulatory requirements. The standard of maintenance and housekeeping, with a few exceptions, is acceptable. The main points that must be addressed, besides the deficiencies noted in this report, are management, primarily the well being of the employees; communications both internal and external, and training.

RECOMMENDATIONS

The deficiencies noted in this report should be corrected.

The runaway lane problem at Galena Bay should be addressed.

Loading procedures for these vessels must be corrected, as a priority issue.

Training, as described, should be instituted without delay.

KOOTENAY LAKE FERRY INSPECTION
(LICENCED FERRIES)
22-23 SEPTEMBER, 1992

INTRODUCTION

This service links Balfour with Kootenay Bay on Highway 3A across Kootenay Lake. The system has two ferries: the MV ANSCOMB with a capacity of 42 automobiles and 150 passengers; and the MV BALFOUR with a capacity of 38 automobiles and 136 passengers.

The ferries operate on a varying schedule taking into account the heavy summer traffic, special weekends, and the reduced traffic in the winter. The MV ANSCOMB operates year round on a 50 minute schedule in the summer and hourly in the winter, from 0600 hours to 0110 hours; whereas the MV BALFOUR operates on a 50 minute schedule during the summer, starting at 0830 to 1740 hours. The crossing distance is 5.5 miles and it takes about 35 minutes.

The infrastructure, besides the two vessels, includes two docks and parking lots, a trailer office at Balfour, a dry dock at Sunshine Bay, a tug, barges, and a pile driving barge.

An alternate route exists from Balfour via Nelson-Salmo-Creston to Kootenay Bay, a distance of 234 km (146 miles) on a paved road.

In 1986/87, the vessels carried 343,259 passengers and 153,378 vehicles, at a cost of $2,124,036; and, in 1991/92, the vessels carried 386,883 passengers and 182,069 vehicles, at a cost of $2,616,922.

This is a high volume operation, particularly during the summer months, when the two vessels are required. It is a vital highway link year round, and especially when an avalanche makes alternate routes impassable. For both vessels, approximately 50% of the traffic is automobiles and the remaining 50% is comprised of trucks, commercial, private and recreational.

OPERATIONS

From an operations perspective both the ANSCOMB and the BALFOUR are well maintained. Given the static nature of the personnel situation, this provides the benefit that each member of the crew should be thoroughly familiar with and competent at their respective duties within the vessels. The problem is the repetitive nature of the work tending to induce complacency, together with insufficient leadership. This is especially to be guarded against by making all emergency drills as realistic as possible, followed by detailed debriefings, and, if needed, individual training in emergency equipment.

Vehicle Loading and Terminals:

Balfour Terminal: At the turn-off from the main highway, there is a clearly marked sign showing the ferry schedule, the load limitations, fuel restrictions and the dedicated dangerous cargo sailings. There is signage for six lanes of traffic with a manual controlled barrier. Loading is done by a deckhand from the vessel, and vehicles are sorted in order to obtain a better stow.

There is no special treatment given to physically challenged passengers, either to identify them or load them in a way that would allow for them to be easily off-loaded in the event that the vessel had to be abandoned. (Note: This item was addressed in a recent arbitration board order.)

It is reported that during the summer season when heavy traffic conditions prevail, a part-time terminal employee is hired to assist the Loading Officer, but this officer makes the decision on the deployment of the traffic.

The approaches to the terminal are clear and well defined.

The loading ramp, pilings and pontoon appears to be in good condition. Besides the ramp, there is a layover berth for the BALFOUR, together with a small barge and tug, all of which appear to be in good condition.

Kootenay Bay Terminal: The approaches to the terminal are clear and well defined. There is signage for one to six lanes plus a separate lane for the large trucks, this effectively blocks the Dangerous Cargo signage. This sign should be relocated. It was noted that the concrete pillars at the shore end of the loading ramp were placed close enough together to cause a hazard for large vehicles. They should be replaced to better utilize the full width of the new ramp.

There is no special treatment given to the physically challenged passengers, either to identify them or load them in a way that would allow for them to be easily off-loaded in the event that the vessel had to be abandoned. (Note: This item was addressed by a recent arbitration board order.)

It is reported that during the summer months when heavy traffic conditions prevail, a part-time terminal attendant is hired to assist the Loading Officer, but this officer decides on the deployment of the traffic.

The loading ramp, pilings and pontoon appear to be in good condition.

Lighting:

Lighting at the terminals is good.

Pollution:

Both vessels are equipped with holding tanks for black/grey water and for oily waste. The black/grey water is treated on the vessel by aerating, and it is then discharged daily at the Balfour terminal into the local sewage system.

The vessels do not have oily water separators, the engine room and bilge oily water is pumped into a holding tank and then removed under contract in 45 gallon drums.

Containment Equipment:

There is no oil spill containment equipment or supplies on either vessel or ashore.

Certification and Publications:

The vessels have current SIC 16 licences from the Canadian Coast Guard permitting 157 passengers and crew for the ANSCOMB and 156 passengers and crew for the BALFOUR.

The potable water certificates for both vessels were posted but expired in March, 1992.

On both vessels the ship's black book with stability and surveys was readily available. However, these books did not contain the test certificates for the lifeboat davits.

Both vessels carried hydrographic charts for the lake, the ANSCOMB booklets were current, but the BALFOUR carried an old set which should be replaced. Notices to shipping and other relevant marine publications were available together with a nautical and engineering library.

The current draft of the Ministry Policy and Procedures Manual was not available in either vessel.

Engine Room Log books were kept for spare parts inventory, repairs and maintenance, and operations. These appeared to be diligently kept up on both vessels.

A First Aid/Accident Report Book was sighted in both vessels and these were located in the first aid kits.

Navigational Equipment:

The ANSCOMB is fitted with two new RAYTHEON R73 RASTARSCAN radars, but they require tuning as there is a blanking at the centre. A RAYTHEON technician should attend to correcting this "peaking" requirement. The radars are used in the "heads up" configuration, and the ANSCUTZ Gyro should be interfaced with these radars.

The BALFOUR is fitted with two older DECCA 1070A and RM 914C radars. These are the castoffs from the ANSCOMB, but they are in operating condition, except that both manual cursors are in need of immediate repair. These radars are used in the "heads up" configuration and the officers interviewed are unhappy with this equipment, and had requested repairs, but to no avail. Immediate attention should be given to this item.

Both vessels have magnetic compasses, but a deviation card was only available in the ANSCOMB, and neither compass had been adjusted for a long time. Consideration should be given to installing a Gyro compass in BALFOUR, with an interface for the radars.

Communications:

Both vessels have current radio licences and sufficient VHF frequencies. There is a telephone on the ANSCOMB. It is recommended that the BALFOUR be fitted with a BC Tel telephone.

Neither vessel carried VHF or UHF handheld radios, which resulted in no communications being available to the vessel's emergency rescue boat when deployed.

The PA system in the ANSCOMB is good. There is no PA system in the BALFOUR and it is recommended that one be fitted.

SAFETY ISSUES

Examination of the vessel's Logs indicated that emergency drills were being conducted in accordance with the Canada Shipping Act.

Knowledge of the procedures for Fire and Boat Drills was found to be reasonably good. The additional stress imposed with passengers, "outside" observers and scenario drills has shown weaknesses in the present system of training. One watch in each of the vessels tested carried out the drills well and efficiently.

There were no check-off lists in place and no proper emergency equipment/fire plans posted. A comprehensive emergency equipment and fire plan should be standard and posted in all vessels in the fleet. A new evacuation plan is fitted in the ANSCOMB in the cafeteria area, but this plan is not accompanied by any emergency procedure instructions.

Drafts were seen on the BALFOUR, but not on the ANSCOMB. Drafts were not taken daily or entered into the ship's log.

EMERGENCY PROCEDURES

Emergency drills were conducted on the two vessels, and on all occasions, were exercised with vehicles and passengers on board. The emergency drills were as follows:

- A man overboard, followed by
- Fire in the cafeteria with waitress trapped in the galley
- Master incapacitated, requiring first aid, and the mate to assume command
- Fire in the generator room
- Fire spread to engine room, engineer injured and trapped in a smoke filled engine room
- Bomb threat resulting in an abandon ship.

Fire:

In general, incorrect whistle and alarm signals were sounded and verbal instructions were unclear and did not generate a sense of urgency. There is a need for an emergency procedures card system by which the master can make a quick reference for the correct procedure to be followed. The masters in the ANSCOMB did not utilize the PA system, except when prodded. Further, in BALFOUR, there is a need to install a public address system. It should be noted that, apart from the alarms, the PA system is the only means to marshall the passengers, since the crew will be busy with the emergency and will probably not have time to deal fully with the passengers.

First response to the fire drill scenario was found to be good, the crews carried out the correct procedures for use of the extinguishers and hoses, including crowd control. Upon the introduction of a second more complex scenario, good leadership in two of the shifts resulted in well carried out rescues. However, when a strong on-scene commander was not present, there was confusion and a poor response. Reports from the on-scene commander to the master were poor. It should be noted that the assistance of the contracted caterers in crowd control and the donning of lifejackets was very good and they should be commended.

Further scenario type training and drills are recommended.

Man Overboard:

The correct whistle and alarm signals were not sounded. A Williamson turn was not carried out by the masters of the ANSCOMB, and this type of manoeuvre is not required in the BALFOUR because of the propulsion system.

The man overboard drills were in general not efficient. On one shift this drill was at an unacceptable standard. The drills have shown up poor equipment maintenance, poor boat handling, and the need for better training. The rescue boat in the BALFOUR is stowed facing the stern, making deployment very difficult. For both vessels, consideration should be given to replacing the davit system with the type that is installed in the NEEDLES. Freeboard could be a problem, but it is felt that this is not insurmountable, and a system such as in the NEEDLES would relieve needed crewmen to other duties. If this is not possible, then the rescue boat davit should be fitted with a motorized winch. This also applies to the new readily deployable accommodation ladders. The use of large wheels, and an electric drill to deploy this equipment and to raise the rescue boat is considered to be dangerous. A modern system is required immediately, and the use of the electric drill should be discontinued as soon as is practicable.

In two cases, sight of the man overboard (lifebuoy) was spotted correctly and the rescue boat crew given good directions by the spotter. A radio in the rescue boat would have been of value. This deficiency should be rectified.

Abandon Ship:

There was good enthusiasm for the abandon ship drills which were treated as a true-to-life situation. In one case, the passengers were not mustered at their abandon ship stations, given lifejackets or instructed in their use. It was reported that they did not do this because standing orders forbade them to carry out drills with passengers aboard! Nevertheless, other crews carried out this drill well. No copy of this order was available.

The car decks were not cleared by any of the crews during the abandon ship. The excuse given was a lack of crew, but in this case it is not an acceptable reason.

The decision to engage in emergency drills during operations, while incurring some minor inconvenience was worthwhile from both a practical and public relations point of view. It especially brought out the point that many of the passengers using the ferry are able bodied individuals of a practical disposition who are capable of providing support, if requested.

Anchoring:

The anchoring arrangements on both vessels were basically the same. The system for deployment is antiquated but acceptable.

Loss of Steering:

Due to the nature of the propulsion system on the BALFOUR, a loss of steering exercise was not carried out, and is not necessary. Also, no exercise was carried out in the ANSCOMB, because of the preponderance of backup systems.

Loading Procedures:

It is noted that the Loading Officers in these vessels use a secured for passage procedure, and this includes a hand signal to the master and a buzzer signal which sounds in the wheelhouse. Although the master in the BALFOUR has a good view of the loading area, it is considered that inattention or a distraction could draw the master's attention away from this most important evolution. The hand signal could be missed, and anyone on deck could press the buzzer inadvertently. The BALFOUR has a buzzer system, but no sound powered phones. The ANSCOMB has sound powered phones at both ends of the vessel in the loading area, but these are not used. In this vessel, the master cannot see astern to the loading area, and relies on the buzzer for completion of loading. It is recommended that this system of communications be corrected, in that the vessel should not depart the berth until the master receives and acknowledges a proper report from the Loading Officer that the ship is in all respects ready to proceed, and this includes a report that the bow line has been "let go." The BALFOUR should be fitted with a sound powered phone system, similar to that in the ANSCOMB. Consideration should be given to installing a video monitoring system for the master of the ANSCOMB to combine a phone report from the Loading Officer with visual confirmation.

DECK

The following items need corrective action:

- The hook of the rescue boat should be replaced with a self-release type such as the MILLS and the crews must be thoroughly instructed in the use of such a release hook.

- A time check between the wheelhouse and engine room should be implemented at the start of every morning watch.

- Drafts should be taken and recorded in the Log at the start of every day.

- Draft marks should be marked on the ANSCOMB.

- All steel wire rope viewed in the vessels require lubrication.

- Install Gyro compass in the BALFOUR, with radar interface on both vessels.

- Install BC Tel radiotelephone in BALFOUR.

- Supply three UHF handheld radios to each vessel.

- Install a PA system in the BALFOUR.

- Post emergency plans and fire equipment lists in both vessels.

- Post instructions for donning lifejackets, along with emergency procedures for passengers on outside bulkheads in appropriate places.

- Install sound powered phones at the loading positions in BALFOUR.

- Improve the awkward and potentially dangerous rescue boat davit system with a system similar to that in NEEDLES. If this is not practical, then a motorized winch should be installed. This is applicable to both vessels.

- Withdraw from service the electric drill that is used to hoist the accommodation ladders and the rescue boats. This item is dangerous.

- Install a monitor for the master in ANSCOMB to confirm completion of loading and securing for passage.

- Institute correct clearance procedure, primarily by having the final report from the Loading Officer to the master by sound powered phone.

ENGINEERING

It is recommended that the following items be corrected:

- The sign above the CO_2 release for the engine room in the ANSCOMB should be changed immediately as it is misleading and could be dangerous if tripped in an emergency.

- Battery isolation switches should be fitted to all starting battery systems.

- Self closing valves on all the oil tank gauge glasses should be installed, especially on any tank containing low flash point solvents or fuels.

- CO_2 flooding sign mounted in all engine spaces in the BALFOUR should be clearly marked as to what area is being served.

- The existing fusible links holding engine room and other doors open should be replaced with a magnetic retainer, operated from the bridge and one other location outside of the engine room. The plywood dampers on the BALFOUR should be replaced with proper fire doors that close tightly.

- More reliable and precise communication between the engine room and bridge should be established.

- Seals on fire doors on both vessels are generally in poor condition and are in need of replacement.

- Install up-to-date eye-wash stations in both engine rooms.

- Lock back devices should be fitted to every deck hatch when open.

- The wood doors on the engine control room in BALFOUR and the makeshift door adjacent to this space should be replaced with proper fire doors.

- The emergency panels on the car deck for fans and fire alarm should be covered with glass in order to prevent inadvertent tripping.

CERTIFICATION AND TRAINING

Certification:

Masters, Mates and Engineer Officers employed in these vessels are certified to do their jobs and they do hold the appropriate certification issued by the Canadian Coast Guard.

Training:

A BIRP should be inflated yearly and all crew members should be present.

Consideration should be given to the MED training of auxiliary employees who have served for more than one year.

A review and debriefing of the crews by an outside audit team of the emergency procedures and equipment should be instituted on a regular basis.

Consideration should be given in the handling of the physically challenged.

Masters and mates require the command and control course, MED D.

A proper orientation course is required for new employees, along with a detailed syllabus and an on-the-job record.

The deckhand's training syllabus, as previously used, should be re-instituted, along with a record of accomplishment. A review should be required annually.

CONCLUSION

These vessels are in compliance with all the Canada Shipping Act regulatory requirements. The standard of maintenance and housekeeping, with a few exceptions, is acceptable. The main points that must be addressed, besides the deficiencies noted in this report, are the need for good management practices and, more important, professional leadership, communications both internal and external, and training.

RECOMMENDATIONS

The deficiencies noted in this report should be corrected.

Clearance procedures for these vessels must be corrected, as a priority issue.

Training, as described, should be instituted without delay.

NEEDLES FERRY INSPECTION
(CABLE FERRY)
17 SEPTEMBER, 1992

INTRODUCTION

The Needles Ferry operates on the Lower Arrow Lake between Needles and Fauquier making a transportation link for the continuation of Highway 6. Fauquier is 56 km (35 miles) south of Nakusp and Needles is 124 km (78 miles) east of Vernon. This ferry operates 24 hours per day, on a half hour departure schedule from 0600 to 2200 hours, and on demand during the silent hours. The ferry has a capacity of 40 automobiles and 150 passengers, and the 1200 yard crossing takes about 10 minutes.

There are no viable alternate routes, and the ferry provides an essential link for Highway 6. The highway starts at the U.S. border at Nelway and passes through Nelson, Slocum, Nakusp, Needles and continues over the Monashee to Vernon where it meets Highway 97. Alternate routes involve an 8 to 10 hour drive.

In 1986/87, the NEEDLES, a licenced ferry, carried 418,384 passengers and 155,771 vehicles, at a cost of $1,254,516; and in 1991/92, the NEEDLES cable ferry carried 327,122 passengers and 141,862 vehicles, at a cost of $833,087.

OPERATIONS

General:

The size and appearance of the NEEDLES is most impressive, and it could be described as the Flagship of the cable ferry fleet. The NEEDLES is a registered vessel, with Victoria being the port of registry. This is an interesting situation since the Canada Shipping Act provides for ship registration but cable ferries are deemed not to be ships. There is an inconsistency, in that the other cable ferries in this system are not registered under the Act.

This vessel is relatively new, and it was designed and constructed to Classification Society Rules. The end result shows in that the vessel is a showpiece having total wheelhouse control and monitoring of the traffic flow and of machinery space operating conditions.

This vessel is a two person operation, and some of the operators have Marine certification. These are personnel who have remained with the NEEDLES, after the licenced vessel was replaced, and as a result have been reclassified to Machinery Operators.

If this unit were to be placed under Canadian Coast Guard inspection, it would be patently clear that the Canadian Coast Guard Regulations are out of date. This unit carries life saving and fire fighting equipment far in excess of Canadian Coast Guard requirements for cable ferries. The Managing Owner/Ship's Husband deserves credit for raising the Ministry's standards to a modern level of acceptability in emergency rescue equipment. The NEEDLES represents a definite progression in the business of moving people and vehicles, rather than perpetuating outmoded means of transport.

Terminals and Vehicle Loading:

The concrete ramps were in good repair, and the solid wedges are scheduled for replacement in the very near future.

There was a good system for loading vehicles and this was done by using control barriers and flashing lights operated from the wheelhouse.

The approaches to the west side terminal had a steep hill with a runaway lane which required crossing in front of any traffic off-loading from the ferry. This is a potential major hazard, because the lane is not properly identified and is located on the wrong side of the road. This situation should be given immediate attention.

Certification and Publications:

As already discussed, operators do not need any certification for operating this vessel. It is suggested that this situation should be reconsidered, since NEEDLES is a modern cable ferry which carries a considerable number of vehicles and passengers. The safety of the passengers is paramount, and appropriate certification would give the operators the knowledge vitally needed in emergency situations.

All publications required were present and correct with the exception of the Policy and Procedures Manual which was not available.

SAFETY ISSUES

There was no consistent arrangement for the spotting of the person overboard and directing the rescue boat operator to the person in the water.

An innovative system for changing the BIRPS without the use of a hoist is employed and this would be of assistance to other isolated vessels. In essence, it would avoid a potential hazardous situation.

The man overboard drill carried out in this vessel was most impressive and highlighted the use of the MILLS type quick release, plus an innovative self release brake cable for one man lowering operation of the rescue boat. This rescue boat system should be considered for general use in the fleet. When married to, in this case a POLARIS, the system has the advantage of allowing one person to conduct a man overboard rescue, and in this instance, preserves the integrity of the vessel by allowing the other crewman to deal with any other situation that may arise.

Fire:

All other fire and safety systems were in good order and the operators had considered all options and were well versed in potential emergency scenarios.

There is no self contained breathing apparatus on board and consideration should be given to supplying this item. Although the engine room is not normally manned when the ferry is in transit, the need for this valuable piece of fire fighting equipment should not be overlooked.

There is no fire plan showing the position of fire extinguishers, fire stations and emergency equipment.

There is no signage on the car deck for passengers with instructions on how to don a lifejacket or any emergency instructions.

ENGINEERING

The starting arrangement for the auxiliary engines had no battery isolation switch. It is recommended that one be fitted.

It was noted that the void spaces are well insulated. This results in a high level of condensation inside the spaces, and consideration should be given to additional ventilation.

Several vent plugs on the car deck were missing and several were not attached. This should be corrected.

CONCLUSION

The NEEDLES is an outstanding example of how a cable ferry should be outfitted for operating and emergency situations. The emergency rescue boat system is exceptionally well adapted to the requirements of one man operation, and of great value in this instance. It should be considered for all cable ferries, and if practicable in the licenced ferries as well.

RECOMMENDATIONS

The deficiencies noted should be corrected.

The emergency rescue boat system should be considered as standard for all cable ferries.

The quick change system for the BIRP should be considered as standard for all ferries, where possible.

The runaway lane situation should receive immediate attention.

ARROW PARK FERRY INSPECTION
(CABLE FERRY)
17 SEPTEMBER, 1992

INTRODUCTION

This ferry operates on the Arrow Lake and is located 22 km (13 miles) south of Nakusp, providing service between East Arrow Park and West Arrow Park. This is a 24 hour service operating from 0500 to 2245 hours, and on demand during the silent hours. This is a one man operation, which means that the operator is responsible for loading/unloading, discipline on board the vessel, emergency procedures, maintenance of reports and logs, and general planned maintenance routines and cleaning.

Service hours move ahead two hours during the fire season. The load limit for this ferry is 40 tons, and it has a capacity of 28 automobiles and 75 passengers.

There are no viable alternate routes on the West Arrow Park side. The roads are logging roads, even though it is possible to drive these with a four-wheel drive vehicle to Revelstoke and Fauquier in the summer months. At the top of the hill on the West Arrow Park side there is a sign which reads: "Private Logging Road, Loaded Logging Trucks, Travel at Your Own Risk". These logging roads are kept open by Pope & Talbot and there is no activity by the Ministry of Highways on this side of the lake.

In 1986/87, the ferry carried 38,995 passengers and 18,874 vehicles at a cost of $142,725; and, in 1991/92 the ferry carried 48,285 passengers and 26,243 vehicles, at a cost of $306,028.

OPERATIONS

General:

The fire and boat drill exercises carried out were conducted by the operator in a calm and efficient manner.

Terminals and Vehicle Loading:

The vehicle loading ramps were made of concrete and in good condition. Vehicles and passengers are self loading, which appears to work successfully.

There is no signage at either terminal for load limits, dangerous cargo or propane precautions, or for a ferry schedule. There is no warning at East Arrow Park that the roads on the other side are logging roads and that drivers using these roads "travel at their own risk."

Communications:

This ferry is well equipped with VHF radios and has communications with Pope & Talbot (Westar Logging), the boom tugs, and the Department of Transportation and Highways Operations Centre. In addition, the vessel carries a BC Tel radiotelephone.

Pollution:

The vessel is equipped with an electric toilet, which handles the sewage load successfully, and effluent is not discharged into the river. The oily waste is picked up in 45 gallon drums under a contract with Mohawk.

There have been minor spills of fuel, but there is no containment equipment on board or ashore. This should be provided to all of the Ministry's vessels.

SAFETY ISSUES

The emergency anchor arrangement is of the type that is readily deployable. Although the anchor chain was properly ranged, the anchor required lifting over a rail in order for it to be deployed. This is an awkward situation, and should be rectified.

The lifejacket locker on deck needs to be replaced, and the number of lifejackets stencilled on the outside of the locker. There was a pad lock on the locker door, but the door was unlocked.

The provision of a sandbox would be an asset.

The existing rescue boat is a 14 foot aluminum SPRINGBOK. This rescue boat is **very unstable** and could be overturned when conducting a rescue. The davit arrangement for this boat is unsatisfactory for a single-handed operation. There was no safe working load on the davit, which was of the radial type and extremely difficult to operate, the winch and the supporting shackle were too small. It is recommended that this system be replaced with the type that is presently fitted in the NEEDLES.

The 75 person BIRP has been fitted with a 30 foot painter.

It was reported that in an emergency and major failure of the drive cable, the rescue boat could push or pull the ferry to shore. Further, the 7/8" guide cables are to be replaced with 1", and the main drive cable will be reduced from 1 1/8" to 1" as some wear has been noted on the main drive wheels together with burying of the protective coating.

There is no means for the operator to detect a fire in the engine room except by being informed by passengers. It is recommended that a fire detection system with an alarm in the wheelhouse be fitted immediately, and consideration be given to fitting a CO_2 flooding system, with a release control in the wheelhouse. With this system, the doors to the engine room should be replaced with acceptable fire doors, gravity closed with appropriate magnetic releases.

One of the battery cables to the main engine starter runs through a patch of oil under the sump. This cable should be re-run so as not to be on the tank top.

The main diesel fuel tank has a nozzle which allows the fuelling of vehicles. This nozzle should be clearly marked and locked.

There were no covers on the fluorescent light fixtures in the wheelhouse and the passenger cabin.

There is no signage for the information of passengers on how to don a lifejacket or emergency procedures for the information of passengers.

Fire and man overboard drills are not conducted. This should be corrected immediately, along with recognized procedures for the operators to follow in emergency situations.

Exhaust system from the diesel engines should be modified to prevent wheelhouse saturation.

CONCLUSION

Although there were items to be corrected, overall this vessel is well operated and maintained. Since this is a one-person operation, changes are required as recommended to assist the operator, particularly in emergency situations.

RECOMMENDATIONS

The deficiencies noted in this report should be corrected.

The emergency rescue boat system should be replaced with a type similar to the one on board NEEDLES.

A fire detection system, along with an alarm, should be fitted in the wheelhouse, and fire doors should replace the present doors leading into the engine room.

A CO_2 flooding system should be fitted for the engine room, and a control for operating this system should be installed in the wheelhouse.

HARROP FERRY INSPECTION
(CABLE FERRY)
21 SEPTEMBER, 1992

INTRODUCTION

This HARROP ferry operates on the west arm of Kootenay Lake 24 km (15 miles) northeast of Nelson and 7 km west of Balfour, running between Longbeach and Harrop. The ferry operates on demand 24 hours a day. It has a capacity of 10 automobiles and 55 passengers, and the 500 yard crossing takes about four minutes.

There are no alternate routes and residents in the Harrop-Proctor area depend on the ferry service for commuting to work and for access for all normal and emergency services.

In 1986/87, the ferry carried 275,594 passengers and 162,774 vehicles, at a cost of $266,223; and, in 1991/92, the ferry carried 168,983 passengers and 112,820 vehicles, at a cost of $262,020. This is a very intense and busy ferry service, and it is operated by one operator.

The present cable ferry is to be replaced in the very near future with a vessel that will have the capacity to carry 28 cars and 100 passengers. It will be similar to the cable ferry at Arrow Park.

OPERATIONS

General:

The vessel configuration, with the operator isolated in the wheelhouse well above the car deck, makes it difficult for the operator to exert command and control over the passengers. There appears to be an unwillingness of the public to abide by the rules: to shut off idling engines, which creates a health hazard to the operator; to comply with safety related requests such as controlling children when underway; to assert his position of being "in charge" of the vessel when faced with contraventions of the transit rules; and, a lack of support from management and the police authorities in the area. The Senior Captain has a responsibility to ensure that this situation is corrected.

The operator did not have an emergency procedures publication, although he did have a book with assorted instructions, but not arranged in any logical fashion.

There is a storage shed at the terminal in Harrop that contains 45 gallon drums of gasoline and bulk oil. This shed is a fire hazard, since it is strewn with empty boxes, paper, and oily rags. Corrective action is required.

Terminals:

There is signage at the terminals for stopping the traffic at a specific point before loading, ferry schedule, load limit, and for service interruption when carrying bulk fuel and other dangerous cargo. However, the signage is not well displayed, and drivers disregard the requirements, even to the point of proceeding to the ferry before the operator can give any signal for loading. The operator requires the support of the Senior Captain to ensure that these infractions are corrected.

Communications:

The vessel does not have a PA system, but one is needed. The operator has communications with the Highways Operations Centre, a BC Tel radiotelephone, and a frequency to communicate with the local fire departments.

Pollution:

The vessel has holding tanks for black/grey water which is not discharged into the lake. Oily water is retained and pumped ashore for retrieval by Mohawk.

There is no containment equipment in the vessel or readily available from ashore.

Navigation:

This vessel still has running lights. To maintain continuity these should be removed and replaced with one 360 degree white light on the wheelhouse or mast and two 180 degree lights on either end of the vessel.

SAFETY ISSUES:

The operators do not conduct emergency drills. It was reported that since the operator was a Machinery Operator, equivalent to a truck driver, knowledge of emergency drills was not required. Since these operators are in fact Marine employees, they should be reclassified to reflect their employment and responsibilities, and be trained in emergency procedures.

The lifejacket locker was not marked properly for contents, and the number of lifejackets was not stencilled on the outside of the locker.

The two pad type standard lifejackets on the vessel were found to be in good condition. However, this type of lifejacket has not been accepted for Canadian Coast Guard purposes for many years. The lifejackets carried in this vessel are about 25 years old.

The gas tank on deck did not have a WHMIS sign.

The vessel did carry a diagram for abandon ship and an instruction for wearing a lifejacket, but these were posted in the wheelhouse and not on the car deck. This type of signage should be posted on the car deck for the benefit of the passengers.

There is no indicator light or alarm to alert the operator to a fire in the engine room. The release for the CO_2 system is not in the wheelhouse, and the operator must leave this space to activate it.

Exhaust system from the diesel engines should be modified to prevent wheelhouse saturation.

The procedure conducted by the operators in the event of a fire is to proceed to the closest dock, and call the Volunteer Fire Department.

The ferry carries school buses, but there is no-one on deck to govern their conduct when they emerge from the bus. Further, one school bus carries up to 72 children, but there are only 54 lifejackets in the vessel.

Man Overboard:

The emergency rescue boat, called a service boat by the operator, was covered in cobwebs, which confirms the report that emergency drills are not conducted.

Although the operator tried his best, and deserves credit for carrying out the man overboard, the equipment that he had to work with is antiquated and unsafe. The SPRINGBOK aluminum boat was secured to davits, in a chock resting on a large supporting screen. First the gate to the boat was locked; once the boat was cleared from the davits, it had to be bounced over the screen; the oars in the boat were jammed in the knees of the thwart, and it took time to extricate them. It took 12 minutes to pick up the lifebuoy. This system is extremely dangerous and should be replaced immediately with a system as installed in the NEEDLES.

Training:

The operators do not receive training in fire fighting techniques, vehicle fire fighting, First Aid, or in emergency procedures. This requires immediate attention from the Ministry.

Committees:

The operators attend Tool Box meetings, and they do voice their concerns, but there has been no action to address these concerns. It is reported that the Safety Committee meeting is held at the same time, but nothing seems to get done.

CONCLUSION

It is appreciated that the present vessel will be replaced in the very near future. This does not mitigate the fact that the safety of passengers has been jeopardized by inattention to the present vessel.

RECOMMENDATIONS

The deficiencies noted in this report should be corrected.

The emergency rescue boat and system should be replaced with the type installed in the NEEDLES immediately.

Operators should be trained to MED A & B standard, either in-house or at the PMTI, and this should be done in the very near future.

Consideration should be given to reclassifying the Machinery Operators to reflect their work in the marine environment.

GLADE FERRY INSPECTION
(CABLE FERRY)
21 SEPTEMBER, 1992

INTRODUCTION

This ferry operates on the Kootenay River, 20 km (12 miles) from Castlegar and 25 km (16 miles) from Nelson, providing service between Thrums (Tarrey) and Glade. The ferry operates 24 hours per day, on demand during the day and on-call from 0230 to 0500 hours. It has a capacity for 8 automobiles and 75 passengers, and the 300 yard crossing takes about four minutes.

There are no alternate routes and the residents of Glade depend on the ferry service for commuting to work and for all the normal and emergency services.

In 1986/87, the ferry carried 182,334 passengers and 99,715 vehicles, at a cost of $193,016; and in 1991/92, the ferry carried 211,980 passengers and 124,105 vehicles, at a cost of $251,337.

OPERATIONS

Terminals:

The terminals had signs for the ferry schedule and for service interruption when carrying dangerous cargo. The only control for traffic was a stop sign.

Communications:

The vessel carries a BC Tel telephone and a radio channel for communicating with the Transportation and Highways Operations Centre.

Pollution:

The vessel has holding tanks for black/grey water and there is no effluent dumped into the river. Oily water is pumped ashore and removed by Mohawk.

SAFETY ISSUES

There are no written emergency procedures, and the operators do not practice emergency drills.

There is no indicator light or alarm to alert the operator to a fire in the engine room. However, the release for the CO_2 smothering system for the engine room is located in the wheelhouse.

The wheelhouse fire extinguisher was found to be in a discharged condition, and the emergency diesel driven fire pump was unserviceable.

This ferry carries school buses, one of which carries 45 children. The ferry does not carry enough lifejackets.

The gas tank on deck did not have a WHMIS sign.

The emergency rescue boat was chained and locked to the vessel guardrails.

There was no signage for emergency procedures or instructions for the use of a lifejacket.

The lifejackets were the same style and age as those used at Harrop.

Man Overboard:

The emergency rescue boat, referred to by the operator as a service boat, is a 12 foot aluminum skiff. The oars were not in the boat, the boat was lashed to the guardrails, the oar locks were fouled by this line and had to be unknotted in order to ship the crutches, and **the operator refused to do the man overboard drill.**

One of the committee members used the boat to recover the lifebuoy.

ENGINEERING

Hull, machinery space and wheelhouse were in good condition.

This vessel has three watertight bulkheads, and the void spaces were fitted with automatic bilge pumps monitored in the wheelhouse.

Exhaust system from diesel engines should be modified to prevent wheelhouse saturation.

CONCLUSION

This vessel requires immediate attention with respect to safety procedures and drills. The emergency rescue boat and system should be replaced with the type installed in NEEDLES. The operators require training and attention to detail by the Senior Captain.

RECOMMENDATIONS

The deficiencies noted in this report should be corrected.

The emergency rescue boat and system should be replaced with the type installed in the NEEDLES immediately.

Operators should be trained to MED A & B standard, either in-house or at the PMTI, and this should be done in the very near future.

Consideration should be given to reclassifying the Machinery Operators to reflect their work in the marine environment.

MARGUERITE FERRY INSPECTION
(REACTION FERRY)
17 AUGUST, 1992

INTRODUCTION

The Marguerite ferry crosses the Fraser River at a location 16 km (10 miles) north of Soda Creek which is 48 km (30 miles) north of Williams Lake and 54 km (34 miles) south of Quesnel. The ferry operates on-call from 0700 to 1900 hours during the months of March to November, depending on water level and ice conditions. The 200 yard crossing at high water takes 5 minutes and about 22 minutes at low water. The load limit for this ferry is 10 tons, and it has a capacity of two automobiles and 18 passengers.

A passenger only aerial tramway with a capacity of five (one operator and four passengers) is available during the non-operational periods of the ferry.

In 1986/87 the ferry carried 15,204 passengers (26,600 passengers including drivers) and 11,396 vehicles (15,253 units), 65% of which were trucks. The operating cost was $148,725. About 56 vehicles and 77 passengers used the ferry each day, and when the ferry was out of operation due to ice or low water, about 10 people used the aerial tramway each day. The 1991/92 figures are as follows: 24,490 passengers; 10,708 vehicles; and an operating cost of $106,573.

OPERATIONS

There were no dangerous cargo signs at the landings before boarding the ferry. Action should be taken to correct this deficiency.

Planking on the ferry deck is in very poor shape and needs replacing.

The anchor was locked and not ready for deployment, and the cable was not properly ranged.

The ferry and associated equipment is subject to considerable damage from vandalism. Protective measures are taken but to little avail.

The operator had a Policy and Procedures Manual, a ferry check-off list, weekly and monthly planned maintenance routines; a maintenance repair log; but he did not have a Reaction Ferry Log.

SAFETY ISSUES

The ferry carries 24 lifejackets but the instructions for wearing the jacket was inside the box and not posted for passengers to view.

There is a dangerous cargo sign on the ferry. This sign referred to the general requirements of the Canada Shipping Act. In as much as the unit is not under Coast Guard Survey, some thought might be given to this feature. In other words, if the Ministry has opted not to have the unit inspected under the Canada Shipping Act then the posting of such a notice could give rise to misunderstandings in the mind of the general public. The thrust of the notice is appropriate — only the authority is in doubt. Consideration could be given to the same legend but using the Ministry's letterhead or official caption.

The operator was not wearing a lifejacket or vest as required by WCB article 14.22(1) and 28.18.

Since the ferry does not carry a generator, there are no lights on the ferry. This could be dangerous when operating the ferry during the dark hours. Some thought must be given to providing sufficient light to ensure the safety of the operator and the passengers.

The deckhouse and guardrails were found to be in good condition. However, given the one man operation together with the restricted nature of the operation, the emergency procedure for a man overboard situation should warrant special consideration.

Public notices governing operation of the ferry were posted as was the Ministry procedure for dealing with possible cable mishaps.

AERIAL TRAMWAY

The operation and general condition of this unit can only be assessed as excellent. The operator had a practical approach to his job, and he appeared to be competent in the operation of both the power and the primary and secondary emergency means of propelling the cab.

A log should be maintained of the annual and periodic maintenance carried out on the ferry support structure and running gear.

ENGINEERING

The inspection revealed that the hull, cable operating mechanisms and fastenings are all well maintained and inspected on an annual basis. Records were not produced pertaining to annual and periodic inspection of running gear, such as blocks, wires, shackles, etc., although from discussion it was indicated that this is done as a matter of course.

Intra Mountain Testing is the company that has the contract for maintaining the cables for the ferry and the aerial tramway. The non-destructive testing and general maintenance is done once a year. Repair work is done by Stinger Welding. The other maintenance work is done by the operators.

CERTIFICATION AND TRAINING

There is no certification required for operating a reaction ferry. It is desirable to hire personnel that have some mechanical background.

Training is given in First Aid. Operators do not receive training in fire fighting, although some films on fire fighting are shown, but no hands-on training.

Orientation training is done in-house by the senior operator. The senior operator indicated that a training syllabus was available, but a copy could not be produced.

MEETINGS

Tool Box meetings are held regularly, except in the summer operating period. The meetings are well received and attended. Comments from these meetings go to the Safety Committee and safety items are actioned quickly.

CONCLUSION

The operators are proficient in operating the ferry and aerial tramway. The ferry and tramway are in good condition and the operators are intent on keeping them well maintained.

RECOMMENDATIONS

Deficiencies noted are to be corrected.

A standard operating booklet containing maintenance routines, emergency procedures, general operating instructions and required reports should be written and used as a standard for all reaction ferries.

Aerial tramway should be improved to ensure access by the physically challenged.

Operators should be trained in fire fighting techniques and given the Vehicle Fire Fighting course.

APPENDIX 13

USK FERRY INSPECTION
(REACTION FERRY)
21 AUGUST, 1992

INTRODUCTION

The Usk ferry operates across the Skeena River about 26 km (16 miles) northeast of Terrace. The ferry operates on-call from 0615 hours to midnight during the months of March to November, depending on the water level and the ice conditions. The crossing time is 5 minutes at high water and about 20 minutes at low water. The load limit for this ferry is 10 tons, and it has a capacity of two automobiles and 12 passengers.

A passenger only aerial tramway with a capacity of five, one operator and four passengers, is available during the non-operational ferry periods. The tramway operates on-call from 0615 to 2350 hours.

In 1986/87, the ferry carried 31,990 passengers (44,023 including drivers) and 12,033 vehicles (13,950 units), of which 66% were automobiles. The 1986/87 cost to operate this ferry was $190,923. The 1991/92 figures are as follows: 41,106 passengers; 14,742 vehicles; and a cost of $210,115.

OPERATIONS

General:

The Acting Regional Manager Operations stated that a bridge may be built in the Usk location, and that the decision to do so rests at this moment with the Ministry's Executive. Further, that the Region is committed to modernizing the aerial tramway in order to be accessible to the physically challenged.

The hull, cable operating mechanisms and fastenings appear to be well maintained and subject to annual inspections.

The dangerous cargo sign, on both sides of the river, was well defined and visible to approaching traffic. This sign referred to the general requirements of the Canada Shipping Act. Inasmuch as the unit is not under Coast Guard Survey, some thought might be given to this feature. In other words, if the Ministry has opted not to have the unit inspected under the Canada Shipping Act then the posting of such a notice could give rise to misunderstandings in the mind of the general public. The thrust of the notice is appropriate — only the authority is in doubt. Consideration could be given to the same legend but using the Ministry's letterhead or official caption.

Although the ferry carried chocks for vehicles, they were not used.

The operator could not produce an emergency procedures book, but it was explained that a new operator had it for study.

SAFETY ISSUES

The emergency anchor arrangement was noted to be capable of instantaneous operation, but the chain was not properly ranged.

The Lifejacket locker needs to be repainted and the number of lifejackets should be stencilled on the outside of the locker. There was no poster showing how to use a lifejacket. The operator did not know exactly how many lifejackets the ferry carried.

The provision of a sandbox would be an asset.

The deckhouse and guardrails were in good order and the provision of an additional chain preventer at the mid-point of the vehicle deck guard cables is a positive feature.

Public safety and precautionary notices were prominently displayed and the unit is equipped with a modern high speed rescue boat which was in good order.

The operator was not wearing a lifejacket or vest as required by WCB article 14.22(1) and 28.18.

Since the ferry does not carry a generator, there are no lights on the ferry. This could be dangerous when operating the ferry during the dark hours. Some thought must be given to providing sufficient light to ensure the safety of the operator and the passengers.

The safety notices in the event of an emergency and for man overboard are well defined and should be used fleet wide. These are posted in a prominent position on the wheelhouse and are visible to the passengers.

Drills:

Man overboard drills are exercised once every three weeks. This drill should be done once a week.

Fire exercises should be conducted once a week. At the present time this drill is not done. Operators do not get a fire fighting course. It is recommended that operators be given a fire fighting course, and the Vehicle Fire Fighting Course which is given at the Justice Institute of British Columbia.

AERIAL TRAMWAY

This unit was undergoing annual maintenance and an operating inspection could not be done.

CONCLUSIONS

It is understood that the operators in this location are all relatively new to the job, and they do need training.

The Area Bridge Manager has issued the appropriate instructions as follows: planned maintenance routines for the ferry docks; a new hire check list, which contains a training syllabus; a memorandum on conduct, deportment, service to the public, safety, etc.; planned maintenance routines for the ferry; and a memorandum on the maintenance of wire rope, specifications for cleaning, relubricating, inspecting, non-destructive testing, and reporting. This information, along with the safety notices, should be collated into an operating booklet for all reaction ferries.

RECOMMENDATIONS

Deficiencies noted are to be corrected.

The information available at this ferry should be utilized to produce a standard operating booklet for all reaction ferries.

Aerial tramways should be converted to ensure access by the physically challenged.

Operators should be trained in fire fighting techniques and given the Vehicle Fire Fighters course.

BIG BAR FERRY INSPECTION
(REACTION FERRY)
1 SEPTEMBER, 1992

INTRODUCTION

This ferry operates across the Fraser River at a location 71 km (44 miles) by road from Clinton. Cross country the Big Bar ferry is 38 km (24 miles) north west of Clinton. The ferry operates daily from 0700 to 1900 hours and the 500 foot crossing takes about 5 - 8 minutes depending on the water level. The weight limit for this ferry is 10 tons, and it has a capacity of two automobiles and 12 passengers.

The ferry is out of operation due to ice and low water about 4½ months each year, and the commuters, about 8-10 per day, use the aerial tramway and leave their vehicles on the Big Bar side of the river. At times during this closure period, the residents negotiate the difficult route to Lillooet. The ferry operator at Big Bar indicated that the residents on the south-west side of the river rarely move out of their area ... in essence, they are not ardent commuters.

The south-west side of the river is an isolated area with the residents living in the valleys between the mountains. The north-west side of the river at Big Bar is similar except that there are gravel roads to Clinton and to Highway 97 just north of Clinton. The area is relatively uninhabited, except for some ranchers between Big Bar and Highway 97.

The total vehicular traffic in 1986/87 was 2,369 vehicles and the ferry carried 2,006 passengers, at a cost of $85,590. In fact, some of the passengers are cattle, moved 25 at a time onto the ferry, and kept in pens or moved to market from the north-east side of the river at Big Bar. In 1991/92, the vessel moved 3,881 passengers and 1,950 vehicles at a cost of $158,794.

OPERATIONS

The Big Bar ferry is extremely well run in that the operator who was on duty was well trained, enthusiastic and quick to react to situations. He was interested in his work and responded readily to all questions and also to the ordered drills.

The signage on both sides of the river gave the weight limit for the ferry, ferry hours and a sign that located the waiting area before boarding the ferry. There were no dangerous cargo signs or signs pertaining to propane tanks.

There were HALOGEN lights on both sides of the river which are used to illuminate the river, particularly useful at high water to spot debris.

The Reaction Ferry Watch Log; daily journal for maintenance conducted, incidents, general observations, etc; and, the daily traffic work sheet were all well maintained. It was noted that periodic emergency drills were not conducted during the month of August.

The operator carried a "walkie-talkie", SPILSBURY PMS 1610 strapped to his belt, and this is most useful during emergency situations. There is a radio in the wheelhouse of the ferry which allows the operator to communicate with the highway operations centre. There is also an AUTOTEL phone in the operator's office ashore.

SAFETY ISSUES

There are no emergency procedures signs on the ferry for man overboard, general emergencies, etc., nor is there a sign for dangerous cargo. There is no poster for instructing passengers on how to don a lifejacket.

There is no anchor in this ferry. Apparently, during the last serious incident when the ferry broke away and drifted down river, the anchor was used, but to no avail as the flukes broke off. It is recommended that the ferry should carry a readily deployable anchor, and from the previous experience, it should be of heavier construction, in order to afford sufficient holding strength to allow time for the operator to abandon the ferry.

There was only one small fire extinguisher on board the ferry, and it is recommended that several more be installed. However, the fire fighting gear is not carried in the vessel, and the operator had to retrieve the pump and the hose from the crew house. This equipment should be carried on the ferry at all times.

The ferry had a generator and this allowed for a good lighting system for operations during the dark hours.

The man overboard exercise was conducted exceedingly well. The operator knew exactly what to do and it took him 4 minutes to feather the ferry, disengage the emergency boat, retrieve the lifebuoy and to return to the ferry. There is a new release system for the emergency boat which was developed in the District. It is suggested that this system be evaluated for possible use in the other reaction ferries. There is a need to expedite the modifications for access to the emergency boat from the car deck. Apparently, this access to the boat will be done by the District.

Emergency drills are conducted once a month, but it is suggested that these drills should be done weekly. The motor for the emergency boat is run-up daily.

The emergency boat has an outboard engine with a standard propeller, and the operator informed the committee that the blades have been damaged several times. To avoid this type of damage, particularly when operations are necessary close to shore, the jet drive (outboard) is recommended.

The Area Bridge Manager has installed an anemometer at the Big Bar terminal. Wind velocity and direction are of interest to the operators, but it was ascertained that there are no operating limits for the ferry or the aerial tramway established. These are not given in the Ministry's Policy and Procedures Manual, the Railway Act or in the Canadian Standards Association regulations. Apparently, this should have been done by the manufacturer. This should be investigated in order to establish operating limits for all reaction ferries.

AERIAL TRAMWAY

It was noted that the aerial tramway at Big Bar was not modified, in that it did not have the engine under a steel deck with a fire suppression system. It was of interest to ascertain the reason for this oversight, since the tramway cab had been refitted two years ago. It appears that the modification to the tramway cabs at Usk and Marguerite were locally approved alterations. It was the Inspecting Engineer, Aerial Tramways, on inspecting these cabs found the engine below the floorboards, and recommended a steel insulated floor and suppression system. However, the addition of this equipment meant a reduction in the weight carried, the reduction of the passengers from five to four. Modification, alterations and additions, should be sanctioned by the Marine Manager in consultation with the Inspecting Engineer, and changes should be standardized so as to benefit the entire tramway system. Changes to a tramway system is a safety issue, and this should be kept foremost in mind.

Standardized standing and running rigging maintenance schedules should be held at all ferry/tramway terminals, and this should include the appropriate specifications for all rigging and sheaves, cable clips, anchor systems, etc.

CERTIFICATION AND TRAINING

The operator on duty was very well trained and most experienced in operating the ferry.

There is no training syllabus, but operators get a one-day review twice a year. Operators do not attend fire fighting courses of any description, and the operator on duty has not attended a First Aid course, although he has been with the system for about eight years. Apparently the District is considering a small engines course for the operators. There should be an approved list of mandatory courses for the operators and this should include: First Aid, fire fighting and vehicle fire fighting.

CONCLUSIONS

Apart from a few deficiencies, this operation is exceedingly well conducted. The operator on duty was well versed in reaction ferry operating and emergency procedures. He was enthusiastic and interested in his system and in his duties. It was a pleasure to see such a well run system.

RECOMMENDATIONS

Deficiencies noted are to be corrected.

The release system for the emergency boat should be evaluated and considered for installation in the other reaction ferries.

Tramway cab modifications should be standardized.

A standard operating/procedures/maintenance book should be produced for all reaction ferries, with an addition for those that have aerial tramways.

Operators should be trained in fire fighting techniques, and given a Vehicle Fire Fighting course and a First Aid course.

APPENDIX 15

LITTLE FORT FERRY INSPECTION
(REACTION FERRY)
2 SEPTEMBER, 1992

INTRODUCTION

This ferry crosses the North Thompson River at Little Fort, a small community located 62 km (39 miles) north of Kamloops and 28 km (18 miles) north of Barriere. The ferry operates daily from 0700 to 1845 hours and the 200 yard crossing takes between 3 and 5 minutes depending on the water level. The load limit for this ferry is 9 tons, and it has a capacity of two automobiles and 12 passengers.

The ferry is out of operation during high water (late May/early July) and during adverse ice conditions. The non-operating period for the ferry is about four months each year, and an aerial tramway is used during this period by about 8-10 people each day.

In 1986/87, the ferry carried 21,296 passengers and 7,375 vehicles, of which approximately 50% were trucks. In 1991/92 the ferry carried 24,137 passengers and 9,395 vehicles. The cost of this operation in 1986/87 was $89,544 and in 1991/92 it was $90,523.

OPERATIONS

This ferry appeared to be well maintained with the operator being most cooperative and attentive to the questions being posed and to the emergency drills that were conducted.

There was an emergency sign posted on both sides of the river which indicated that air horn blasts from the ferry signified an emergency and that help was required.

There were no signs on either side of the river with respect to dangerous cargo or vehicles carrying propane.

The operator had a "walkie-talkie", PMS 1610, and this was the only communication that was in the ferry. There should be a back-up communications system in the wheelhouse.

SAFETY ISSUES

There were no signs in the ferry on emergency procedures, carrying of dangerous cargo, or how to don a lifejacket.

The lifejacket lockers were unmarked and the number of jackets were not displayed on the locker. The lifejackets were a mixture of standard DOT/CCG approved lifejackets and Personal Flotation Devices (PFDs) i.e., buoyant waistcoats. This should be standardized.

The storage container for the emergency boat fuel, the fuel for the steering motor, and the battery installation should have adequate ventilation. At the present time, the lockers have inadequate ventilation.

The fuel storage containers were not marked with the appropriate WHMIS label.

The anchor and cable was in a rusty pile under the deck planking of the ferry. Apparently, anchoring drills are not conducted.

There is only one small fire extinguisher in the ferry, and it is considered that several of these should be carried.

The operator does not wear a lifejacket (vest) when on duty as prescribed in the WCB regulations.

The ferry deck planking was uneven and dangerous in places, especially when operating in the dark. This is of importance, since there is no lighting on this ferry.

There were vehicle chocks available in the ferry, but they were not used.

The safety railings in the ferry, on the outboard side, were not secured to the deck properly, and could be a hazard to the operator in particular.

The man overboard drill came as an initial shock to the operator and this demonstrated what has already been identified throughout the inspections that there is a need for emergency response training. However, in mitigation of the operator's reaction, he then moved quickly and performed a good recovery. The operator informed the committee members that this was the first time that he had done this drill.

The securing arrangement for the rescue boat was different than the one viewed at Big Bar. The securing arrangements for these boats should be investigated and the one best suited for river operations should be installed in all of the reaction ferries.

CERTIFICATION AND TRAINING

The operators do not receive any training in fire fighting techniques or in vehicle fire fighting. However, these operators have had First Aid training. Apart from some operators receiving First Aid training, there seems to be a lack of training in fire fighting and emergency drills and this situation should be corrected.

There is no orientation training syllabus and no written emergency procedures available to the operators.

ENGINEERING

There are no planned maintenance routines available to the operators, and all maintenance and repairs are done by contract.

The hull, wheelhouse, standing and running rigging, and most of the guardrails were in good repair.

AERIAL TRAMWAY

This unit appeared to be well maintained, although there was a discrepancy in the maximum capacity passenger signage. This tramway had an unmodified cab (i.e. without the motor underneath a steel insulated deck and smothering arrangement). This situation has been discussed in the Big Bar Ferry inspection, and suffice it to say that some standardization of the system is required.

CONCLUSION

Deficiencies noted are to be corrected.

The release system for the emergency boat should be evaluated and the best system presently used should be considered as standard for the reaction ferries.

Tramway cab modifications should be standardized.

A standard operating/procedures/maintenance book should be produced for all reaction ferries, with an addition for those that have aerial tramways.

Operators should be trained in fire fighting techniques, and given a Vehicle Fire Fighting course. First Aid training should be given and a refresher course should be organized every three years.

APPENDIX 16

McLURE FERRY INSPECTION
(REACTION)
2 SEPTEMBER, 1992

INTRODUCTION

The McLure Ferry operates across the North Thompson River, and is located about 42 km (26 miles) north of Kamloops and 18 km (11 miles) south of Barriere. The ferry operates on-call from 0700 to 1845 hours daily, and the 200 foot crossing takes approximately 5 minutes depending on the state of the water level. The load limit for this ferry is 10 tons, and is has a capacity of two automobiles and 12 passengers.

The vessel is non-operational during high water (late May/early July) and in the winter during adverse ice conditions. There is no aerial tramway at McLure, and when the ferry is not operating, the public uses the two alternate routes to Kamloops and Barriere and these roads are passable in all seasons and are in good condition.

In 1986/87, the ferry carried 21,164 passengers and 9,870 vehicles, of which 48% were trucks, 39% were automobiles, plus a small percentage of RVs. The cost for this operation, for that year, was $70,257. In 1991/92, the ferry carried 31,789 passengers and 17,466 vehicles, at a cost of $85,132. The increase in traffic on this quaint ferry is of interest.

OPERATIONS

This ferry appeared to be well maintained with the operator being most cooperative and attentive to the questions being posed and to the emergency drills that were conducted.

There were no signs on either side of the river with respect to dangerous cargo or vehicles carrying propane.

The operator did not have, or know about, emergency procedures directives or policy attendant to these procedures.

SAFETY ISSUES

There were no signs in the ferry on emergency procedures, carrying of dangerous cargo, or how to don a lifejacket.

The lifejacket lockers were unmarked and the number of jackets were not displayed on the locker.

The safety chains, on either end of the ferry, were not utilized properly, in that they were strung too low, and as a result were of no safety value.

There was no radio in the ferry. The one radio, and only communications with the highway operations centre, was ashore, since the batteries needed charging. This situation should be corrected immediately.

There is only one fire extinguisher in the ferry, and it is considered that several of these should be carried. However, more important, the fire extinguisher was encased in a steel mesh cage, and it took some time to get it out because the wheelhouse bulkhead was built up against it. This should be corrected expeditiously. The fire extinguisher was last inspected in April 1991.

The decks leading from the wheelhouse should have non-skid treads, as this would improve the safety for the operators in inclement weather.

The man overboard drill came as an initial shock to the operator and this demonstrates again the need for emergency drills. However, once recovered, the operator moved quickly and performed a good recovery. The operator informed the committee members that man overboard drills are not conducted at McLure.

The emergency boat is a small skiff with oars. It is recommended that this ferry have an aluminum rescue boat, similar to the one at Big Bar, and in this instance a jet drive (Outboard) motor on the boat. Rescue boats, motors and securing arrangements should be standardized for the reaction ferries.

The operator indicated that they do not conduct emergency drills, man overboard, fire fighting or anchoring. This situation should be corrected.

The operator does not wear a lifejacket (vest) when on duty as prescribed in the WCB regulations.

There are no chocks for vehicles in this ferry. The chocking of vehicles once on board the ferry should be mandatory.

CERTIFICATION AND TRAINING

The operators have not had any training in fire fighting techniques, vehicle fire fighting, and very little First Aid training. The operator informed the committee members that he has had a one-day First Aid course three years ago. This situation should be corrected, and this applies to all the operators engaged in the reaction ferry operations.

There is no orientation training syllabus and no written emergency procedures available to the operators.

ENGINEERING

This unit appeared to be reasonably well maintained. The hull, wheelhouse, guard rail arrangements were in order with the cables and running gear in good condition.

CONCLUSION

Apart from the deficiencies, this operation is well conducted. The operator on duty was experienced in operating a reaction ferry. He was enthusiastic and interested in his system and in his duties. The operators of this system need the assistance of management to ensure appropriate training is received, and that the various drills are practised and invigilated.

RECOMMENDATIONS

Deficiencies noted are to be corrected.

The emergency rescue skiff should be replaced by a boat similar to the one used at Big Bar, along with a jet drive (outboard) motor, and a quick release securing arrangement.

A standard operating/procedures/maintenance book should be produced for all reaction ferries.

Operators should be trained in Fire fighting techniques, and given a Vehicle Fire Fighting course. First Aid training should be given and a refresher course should be organized every three years.

LYTTON FERRY INSPECTION
(REACTION)
3 SEPTEMBER, 1992

INTRODUCTION

The Lytton Ferry operates across the Fraser River approximately 3 km (2 miles) north of Lytton. This ferry operates daily, on call, from 0630 to 2215 hours, with emergency service available during the silent hours, and the 400 foot crossing takes about 3 minutes. The load limit for this ferry is 10 tons, and it has a capacity of two automobiles and 20 passengers.

The ferry is usually out of service for 2-3 weeks in late June/early July due to high water levels. There is no aerial tramway at Lytton, and when the ferry is not operating, the residents on the west side of the river, and the school children, use the CN Rail bridge walkway. The school children are escorted over this bridge by the ferry operators. The ferry carries a school bus and a van, for a total of approximately 30 school children during the school week.

In 1986/87, the ferry carried 91,220 passengers 34,943 vehicles, 60% of which were trucks, at a cost of $256,569. In 1991/92, the ferry carried 111,714 passengers and 41,178 vehicles, at a cost of $306,656.

This ferry service has been privatized, and the contractor is EMCON Services Inc., Merritt, British Columbia.

This ferry's operation/emergency procedures and drills/maintenance was found to be unacceptable. A letter dated 4 September, 1992, was forwarded to the Ministry strongly recommending that this ferry be withdrawn from service, subjected to a major inspection, properly repaired, and the operators trained in emergency procedures in order to safeguard the travelling public.

OPERATIONS

This ferry is not well maintained. A full description of the poor state of the standing and running rigging is given in the Engineering section.

There are no signs on either side of the river with respect to dangerous cargo or for vehicles carrying propane.

Operators do not check in as a routine with the Highway Operations Centre. Apparently, they contact the Highway Foreman in the event of an emergency. Presumably this is the Foreman employed by EMCON Services Inc.

SAFETY ISSUES

There are no signs in the ferry on emergency procedures, carrying of dangerous cargo, or how to don a lifejacket.

The lifejacket locker is unmarked and the number of lifejackets are not displayed on the locker. The lifejacket locker is locked when the ferry is operating, and there are no lifejackets for children. This latter is an essential item since this ferry carries school children. The ferry carries insufficient lifejackets for this operation.

The fire extinguisher on the ferry has not been hydrostatically tested since 1980 and the last recorded time the extinguisher was recharged was in 1984. This is a serious inspection omission on the part of those responsible for the operation of this ferry.

The fire extinguisher is not fitted into a bracket, and is standing loose in the wheelhouse.

The ferry does not carry an anchor. This is an important safety item, and should be rectified immediately.

There needs to be a window in the wheelhouse so that the operators have a clear view of the car deck. In an emergency situation, the operators will not know what has occurred, until someone else sounds the alarm.

The man overboard drill was a complete failure. A lifebuoy was thrown over the side, and the two operators in the wheelhouse were alerted to the emergency, but there was no reaction. The operator continued and berthed the ferry, and informed the committee members that he would not effect a rescue because of the poor state of the rescue boat.

It is imperative that the present multi-patched, weather worn, rotting inflatable rescue boat be replaced forthwith. The securing arrangement for this boat does not lend itself to swift deployment of the boat, and this must be rectified. The boat should not be chained and padlocked during the period that the ferry is operating.

The operators do not wear a lifejacket (vest) when on duty as prescribed in the WCB regulations.

Two propane tanks are installed in the ferry, with a rubber hose from the reducing valves to the heater in the wheelhouse. This line should be made of copper or steel with appropriate shut off valve. There should be a "sniffer" and the propane tank should be vented overboard. The system should be inspected by a certified gas fitter, repaired and certified in writing.

The operator is placed in jeopardy, since he must jump off and physically drag the ferry to mate properly with the jetty. He is in danger of having his foot caught between the ferry and the jetty. This ferry should have a steering motor, as in the other reaction ferries, to assist in berthing of the ferry.

ENGINEERING

This item is of paramount importance as it affects the safe operation of the Lytton Ferry. The standing and running rigging are in exceedingly poor repair, and this includes: the steering cable has a multitude of broken wires, and this makes the strands in the cable suspect; the ramp cables are in the same state in the vicinity of the sheaves, and the sheaves are badly worn; the vehicle safety cables, on either side of the vessel, are badly kinked and improperly secured; cable clips on most of the standing/live ends are improperly fitted and in some cases loose; the main travel wires, inboard end, are led in such fashion that the blocks are virtually useless, and this means that the wires rub on the pontoons; and, the windline securing arrangement needs attention - one clip found on deck.

There are no planned maintenance routines available to the operators, and apparently, maintenance and repairs are done by the contractor. It is apparent that proper maintenance on this ferry has not been done for some time.

CERTIFICATION AND TRAINING

The operators have not had any instruction in emergency procedures; fire fighting; vehicle fire fighting; or a proper First Aid course.

The operators do not conduct emergency drills, nor are there any written procedures for them to follow.

CONCLUSION

The operational and technical state of this ferry is unacceptable, and is far below the standard of the other reaction ferries.

RECOMMENDATION

It is strongly recommended that the Lytton Ferry be withdrawn from service, subjected to a major inspection, properly repaired, and the operators trained in emergency procedures and given the appropriate safety courses.

BARNSTON ISLAND FERRY INSPECTION
(TUG AND BARGE)
7 AUGUST, 1992

INTRODUCTION

This ferry, consisting of a tug and barge, operates across Parson's Channel on the Fraser River between Port Kells and Barnston Island. The ferry system is continuous, on demand, from 0615 to 2355 hours and to 0055 hours on weekends (Friday, Saturday and Sunday). The distance between docks is approximately 182 meters (200 yards) and the trip takes about two minutes, the total operation of loading/unloading and transit takes about five minutes.

The schedule is continuous, and the ferry makes on average 225 crossings in an 18 hour day, with an average of 1.2 cars per trip. The crew would like to see an operating schedule of every 15 minutes, but it appears that the residents on Barnston Island like the system the way it is at present.

There have been ongoing discussions between the Barnston Island Planning Committee (a newly formed committee), the Ministry of Transportation and Highways, and the Greater Vancouver Regional District as to the future of the Island, incorporation into Surrey, or to remain unincorporated. The problem remains reliable access to the Island, and the one option is to replace the present tug and barge ferry with a self-powered 12 vehicle ferry that would be drive on/drive off (rather than at present drive on/back off) and operating on natural gas. However, there is no money in the budget for this program in the current fiscal year.

The Ministry has contracted this service out to Western Pacific Marine Ltd.

OPERATIONS

The barge is marked appropriately with load line delineating the following passenger/vehicle loads;

28 passengers with five vehicles or school bus and three vehicles;
40 passengers and a school bus; and,
73 passengers, but no vehicles.

The barge had a maximum vehicle weight of 40 tons, but this has been revised to 34 tons. This was necessitated because the bow deck plates began to warp and about 5 tons of steel was used to brace the deck. The load lines were corrected for the revised load limit. The stability information was not available in the tug, and the committee was told that it was in the office because the barge capacity for vehicles had been revised.

The Inspection Certificate (SIC 24) is valid to 13 September, 1992, at which time a further inspection will be conducted to ensure that the ferry steel ramp has been renewed, a new sand box has been made and fitted, a safety chain to fit from the forward stanchion to a long length of wire, and a box has been made to hold the Inspection Certificate. The Inspection Certificate was not held in the tug, but was also in the company office.

Pollution:

Black-grey water is pumped over the side into the river.

The only contamination clean-up material held in the tug and barge was a box of sand for cleaning up oil spills on the deck of the barge.

Terminals:

On the Island side, the dock planks below the water are in very poor shape, and at low water the barge ramp catches on these deteriorating planks. The mainland side requires work as the treads on the dock are in very poor condition.

Communications/Radar:

The tug has a good communications suit and an excellent radar.

SAFETY ISSUES, EMERGENCY PROCEDURES, DAMAGE CONTROL EQUIPMENT

Dangerous cargo is handled separately, that is no passengers or vehicles are allowed on board at the same time. This occurs every third day.

Man Overboard Drills:

The master informed the committee members that in a man overboard situation he would manoeuvre the tug and barge to pick the person up, with lowered ramp to allow the deckhand to pull the person on board. The records show that this is practised once each week.

Fire Drills:

Conducted once each week. The fire hose, nozzle and fire pump worked well.

The lifejacket locker is not marked for contents or for the number of lifejackets in the locker. This should be corrected.

ENGINEERING

Maintenance:

This is done weekly by contract. The mechanic changes the oil, filter, etc. Other maintenance is done by the master and deckhand once a week, i.e., batteries, cleaning, etc.

CONCLUSIONS

The tug and barge appears to be operated in accordance with the current regulations.

APPENDIX 19

SICAMOUS FERRY INSPECTION
(TUG & BARGE)
14 SEPTEMBER, 1992

INTRODUCTION

This ferry system operates on Shuswap Lake between Seymour Arm, Anstey Arm and Salmon Arm, with Sicamous (home port for the operation) and Salmon Arm being the major centres. The ferry system is comprised of the MV PHOEBE ANN, MV STEPHANIE and a barge. The MV PHOEBE ANN, a cruise vessel, can carry 40 passengers and generally operates from April to September. The MV STEPHANIE, a passenger tug, can carry 18 passengers, and the barge, which has a load limit of 75 tons, can carry 9 automobiles. The service operates three days each week, May through October, departing Sicamous at 0700 hours and returning the same day at about 1600 hours. This service is reduced to two days each week, November through April.

A description of the road system in the Shuswap Lake area is of value. There is a road that circumnavigates the Lake, as follows: leaving Highway 1 on the west side of Salmon Arm, crossing the bridge at Squilax (east end of Little Shuswap Lake), through Lee Creek, Scotch Creek, Celista, Anglemont, and to St. Ives, a distance of 47 km on a paved road; then a 42.9 km forestry road continues around the lake following Ratchford and then down alongside the Perry River to a point on Highway 1, 3 km east of Craigellachie, a distance of 80.6 km. The forestry roads are loose gravel and rough in spots, but they are passable.

An analysis of the traffic records shows that in July, 1987, the ferry carried 176 vehicles, 104 passengers (excluding drivers) and 385 tons of freight; and, in October, 1987, the ferry carried 43 vehicles, 28 passengers (excluding drivers) and 22.4 tons of freight. In 1991/92, the ferry carried a total of 469 passengers and 328 vehicles.

These licenced vessels and barge are operated by the Shuswap Lake Ferry Service Limited, under an annual subsidy from the Ministry of Transportation and Highways. In addition, the company has a fare structure for vehicles, passengers and freight. In 1986/87, the subsidy was $28,400, and in 1991/92, it was $48,000.

OPERATIONS

Canadian Coast Guard Inspection Certificate:

This unit consists of three separate vessels, the MV STEPHANIE (built in 1947), the MV PHOEBE ANN (built in 1971), and the registered Barge F.35, and is operated by the Shuswap Lake Ferry Service Ltd. under contract to the Ministry of Transportation and Highways.

As far as safety is concerned, the vessel owner is obligated to ensure that the vessels are operated in accordance with the Canada Shipping Act as a condition of his contract. In this respect, the two motor vessels are certified as passenger vessels and they currently have valid Inspection Certificates (although for administrative reasons the owner could not produce a certificate for the MV STEPHANIE). The barge is not under any inspection regime.

The first point that should be considered is that these units are not ferry vessels. The Canada Shipping Act definition of a ferry vessel is as follows: "any vessel having provision only for deck passengers and for vehicles that is operated on a short run on a schedule between two points over the most direct water route and offers a public service of a type normally attributed to a bridge or tunnel."

These vessels are conventional passenger vessels operating a passenger/cargo service along an extended route on Shuswap Lake. Voyages take approximately four hours with "ports of call" being dictated by the passengers. Except during the summer tourist season, most of the passengers are regulars.

This service has been provided for about 40 years, and it originally started with the MV STEPHANIE as a tug and barge unit, which was inspected in accordance with the Canada Shipping Act provision for the inspection and certification of: "A Barge, Scow or like vessel carrying passengers being towed or pushed by a ship."

It would appear that residential development in the Shuswap Lake area resulted in the construction of the larger vessel, the MV PHOEBE ANN, which was initially brought into service as a tour or sightseeing passenger vessel in 1971, and which at some time subsequent to that date was also engaged as a tug to provide the same passenger cargo service as had previously been undertaken by the MV STEPHANIE.

A review of the MV STEPHANIE's records shows that at or near this time the issue of the SIC 24 tug and barge certificate ceased and was replaced by the SIC 16 passenger vessel certificate. In other words, the combined unit continued to operate with passengers being carried on the vessel as opposed to the barge.

In considering the reasons for the change, the main one probably is the promulgation of a set of specific regulations for tugs in 1971. These are found in Part VIII of the Canada Shipping Act, Hull Construction Regulations, which Regulations were the result of a major work dispute in the Tug and Barge industry in the late 1960's. These Regulations, amongst other things, gave rise to the definition of "tow" which is "to pull or push any floating object."

From a cursory inspection, it would appear that the MV STEPHANIE was modified about that time to conform with the additional hatch and deck coaming requirements of these new Regulations. However, the advent of the Regulations gave rise to a divergence between two fundamental definitions in the Hull Regulations:

(a) passenger ship means a ship carrying passengers.

(b) tug being a vessel built or converted for the purpose of towing.

Complementary to this development was the increased demand for passenger cargo service on Shuswap Lake and the seasonal demand for sightseeing tours. All of these changes resulted in the current situation which is basically that of the MV STEPHANIE being used in the off-season, October to April, and the MV PHOEBE ANN providing service May to September.

These developments were covered by the introduction of the caveat on the vessel inspection certificate that: **no passengers to be carried whilst engaged in towing operations.**

Since this operation concerns the transporting of passengers and vehicles at the same time, with the motor vessel(s) carrying passengers at the same time as the vessel(s) is pushing the barge, there is a need to clarify the liability and certification discrepancies. The Ministry should discuss all of the aspects of the Sicamous motor vessel and barge operation with the Senior Surveyor responsible for inspection and certification of the operation and with the owner/operator.

Terminal:

There were no dangerous cargo signs or signage pertaining to the carrying of propane.

Communications:

The owner indicated that the only communication checks that they have whilst operating is with their own internal staff, but that the circuit is not manned continuously. It was recommended that he liaise with the Ministry in order to set up a circuit with the Ministry's operation centre which would give this operation a reliable safety net, and an immediate response to emergencies.

SAFETY ISSUES

MV PHOEBE ANN

The BEAUFORT inflatable rescue platform stowed behind the wheelhouse, on the centre-line, between four benches. The position of this platform does not lend itself to quick release and should be repositioned.

This vessel does not carry an emergency rescue boat as stipulated in the Inspection Certificate. A rescue boat with a capacity for three persons is to be carried.

MV STEPHANIE

The Inspection Certificate is out of date, but this is a result of an administrative delay.

The owner and crew do not conduct emergency drills. There are no written emergency procedures and there is no training for the crew. This should be rectified.

CONCLUSION

The vessels in this operation are well maintained. The owner is obviously proud of the service that he provides to the Shuswap community, and he has done this for a good many years. The safety issues noted are easily addressed, and the clarification of the certificate requirements should be addressed in unison with the Ministry, the owner and the Canadian Coast Guard.

RECOMMENDATIONS

The deficiencies noted should be rectified.

Inspection Certificate limitation/liability must be clarified by the appropriate authorities.

Queen's Printer for British Columbia©
Victoria, 1992